

# DO SOME FINANCIAL PRODUCT FEATURES NEGATIVELY AFFECT CONSUMER DECISIONS? A REVIEW OF EVIDENCE

PETE LUNN, FÉIDHLIM MCGOWAN, NOEL HOWARD



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## **ABSTRACT**

This paper reviews international evidence on consumer decision-making in retail financial markets. Specifically, we identify and evaluate research from multiple disciplines and methods that links specific features of products to the quality of consumer decisions. The notion of product ‘features’ is broadly defined to include not only product attributes, but also emergent properties such as product complexity and the salience of information disclosure. We document areas of concern from a consumer protection perspective, and describe some common themes, including the inability of consumers to consider all important attributes and whether they can easily discern how the provider is making its profit. We conclude that there is a case for closer integration of empirical evidence and financial regulation.

## Summary

- Behavioural economics and behavioural finance have brought into economic analysis a richer psychological perspective on how individuals make financial decisions.
- Theory suggests firms may have an economic incentive to exploit or confuse consumers who display behavioural phenomena such as overconfidence or inattention.
- Evidence suggests full disclosure of information is unlikely to be a sufficient remedy, as transparency does not eradicate consumer mistakes.
- Specific errors are systematically related to the context in which they are made. Therefore, whoever determines the decision-making context, or 'choice architecture', can influence the outcome of decisions.
- This review is international in scope; it locates, describes and evaluates evidence that specific financial product features have negative effects on financial decision-making.
- Product 'feature' is broadly defined, encompassing not only specific attributes of the product, such as whether it has a variable rate or a capital guarantee, but also emergent properties of the product and how the product category presents itself to the consumer.
- The review covers three broad areas. The first is credit products: specifically, credit cards, personal loans and mortgages. The second is investment products: specifically, retail investments and structured investments. The third area is insurance, with an emphasis on add-on insurance and the excess-premium trade-off in types of insurance such as car and health insurance.



### **Credit Products**

- Credit-card repayments are strongly influenced by the minimum repayment amount suggested by lenders. These amounts act as an anchor on consumers' decisions over how much to repay, possibly because they are perceived as a form of advice.
- Credit-card use is affected by changes to credit limits. Even customers whose balances are not close to their credit limit tend to increase borrowing in response to increases in their credit limits. There is evidence that younger and less-educated individuals change their spending more in response to changes in credit limits.
- Many credit-card fees are not incurred consciously by consumers. An analysis of outcomes after the enactment of the US Credit Card Accountability Responsibility and Disclosure (CARD) Act (2009) (which banned many of these fees) suggests that these fees were essentially 'hidden' from consumers and designed to increase profits. Banning the fees has been of substantial benefit to consumers.
- Consumers' understanding of personal loan repayment dynamics is inaccurate. Superficial aspects of loan offerings have a large bearing on decisions. Moreover, when choosing between loans of different duration, decisions are influenced by whether monthly repayment or financial cost (i.e. the total cost of credit) is emphasised.
- Consumers do not consider the Annual Percentage Rate (APR) on a loan as equivalent to price on a product; they are more sensitive to interest rates when the cost is expressed in cash terms.
- Comprehension of mortgages is often lacking in ways that leave consumers exposed to unexpected repayment increases. Low rates of refinancing suggest that mortgage knowledge may not improve substantially post-purchase.
- Consumers focus disproportionately on initial repayment costs of mortgages. As a result, introductory 'teaser' rates often attract consumers for whom they are unsuitable.
- In an experimental setting, decision fatigue associated with choosing a house simultaneously with a mortgage causes participants to opt for higher-risk mortgages.

## **Investment Products**

- Retail investment consumers pay insufficient attention to fees and too much attention to past performance, especially when it is presented graphically.
- The level of fees that firms charge decreases as fee transparency requirements increase.
- Simplifying how fees are displayed and adding graphical warnings to beware of high fees improve consumer decisions in an experimental setting, without detracting from the attention given to performance.
- Structured products are complex products. The capital protection feature appeals to consumers who are loss-averse. Overly optimistic consumers often give disproportionate decision weight to the best possible return scenario.
- In experimental settings, structured products are overvalued, and the risk of capital loss is fundamentally misevaluated, resulting in systematic underestimation of risk by consumers.

## **Insurance Products**

- Selling add-on insurance at point-of-sale inhibits deliberative decision-making and causes emotional and situational factors to play a greater role in consumer choices.
- Consumers can feel pressured into buying add-on insurance at point-of-sale, or agree to the purchase due to decision fatigue.
- Even minor barriers to viewing alternative add-on insurance products reduce the likelihood of choosing the cheapest option.
- Consumers struggle to understand the trade-off between premium and level of excess, resulting in choices of inferior options from menus. Simplification of plan descriptions can improve decision-making in this domain.

## AT-A-GLANCE SUMMARY TABLES OF PRODUCT FEATURES LINKED TO SPECIFIC BEHAVIOURAL EFFECTS AND POTENTIAL HARMS

### CREDIT PRODUCTS

| Feature <sup>1</sup>   | Behavioural Effect  | Potential Harm   | Possible Preventive Measures  |
|--|---|--|---|
| <b>Minimum or example repayment amount</b>                                 | Anchoring – repayment amounts drawn towards displayed amount  | Credit paid off at a sub-optimal rate, resulting in higher interest costs  | Avoid example repayments; provide reminder that consumer can pay off entire balance                                     |
| <b>Raised credit limit</b>   | Proportional thinking – consumer induced to increase borrowing  | Consumer may spend more than they can afford to repay if increased borrowing not linked to income or affordability | Determine credit limit increases by objective risk assessment or increased ability to repay                             |
| <b>Non-salient fees</b>  | Inattention / limited cognitive capacity – consumer fails to factor fee into decision                                   | Consumer incurs one or more fees that they were unaware of and were hence not anticipated                          | Make all relevant fees salient and simple; limit number of fees; cap fees   |
| <b>Relative salience of repayments and financial cost (cost of credit)</b> | Focusing – consumer places too much relative weight on the more salient attribute                                       | Consumer opts for longer-than-necessary loan, incurring higher financial cost of borrowing                         | Ensure disclosures give equal prominence to co-determined features  |
| <b>Low introductory ('teaser') rates</b>                                   | Focusing; present bias – consumer places too much weight on lower immediate payments relative to higher future payments | Consumer takes on too much risk and struggles to afford repayments when introductory rate ends                     | Include appropriate rationale for lower initial rate in suitability check; make reset rate equally salient              |
| <b>Timing of sale</b>  | Decision fatigue – consumer's cognitive capacity already taxed by thinking about major purchase                         | Consumer makes poorer credit decision when choosing after or alongside major purchase                              | Ensure time between decisions; avoid relevant situational factors (e.g. mortgage brokers on property development sites) |

<sup>1</sup> Product 'feature' is broadly defined, encompassing not only specific attributes of the product, such as whether it has a variable rate or a capital guarantee, but also emergent properties of the product and how the product category presents itself to the consumer (see Section 2, p.11-12).

## INVESTMENT PRODUCTS

| Feature                                      | Behavioural Effect  | Potential Harm  | Possible Preventive Measures  |
|--|---|---|---|
| <b>Non-salient fees</b>                      | Inattention / limited cognitive capacity – consumer fails to factor fee into decision   | By not integrating fees into decision, consumer chooses fund with lower-than-expected returns                   | Make all relevant fees salient and simple; limit number of fees; cap fees                         |
| <b>Framing of fees</b>                       | Proportional thinking – consumer dismisses or underweights percentage differences that are small relative to investment amount      | By underweighting fees in decision, consumer fails to choose funds with lower fees but similar prospects        | Frame fees in monetary units (where possible) to indicate monetary equivalent; cap fees           |
| <b>Past performance</b>                      | Extrapolation bias – consumer places too much weight on past fund growth  | Consumer places too much weight on past performance relative to other important attributes, e.g. fees, risk     | Standardise time frame for past performance information; give risk and fees equal prominence      |
| <b>Capital guarantee</b>                     | Loss aversion – consumer pays substantial cost to avoid exposure to possibility of nominal loss                                     | Consumer overpays for nominal protection, by sacrificing expected return or incurring higher fees               | Cap expected profit margins (mark-up relative to expected returns) of structured products         |
| <b>Headline rate</b>                         | Over-optimism; probability misweighting – consumer overestimates likelihood of best outcome   | Consumer misjudges expected return relative to costs or other investments                                       | Match prominence of return scenarios for structured products to expected likelihood of occurrence |
| <b>Barrier feature triggers capital loss</b> | Attribute averaging – consumer estimates risk by averaging across multiple funds, although only the worst performer triggers losses | Consumer takes on more risk than intended by underestimating risk of capital losses when choosing between funds | Avoid complex triggers; employ ‘what if?’ scenarios to gauge understanding and suitability        |

## INSURANCE PRODUCTS

| Feature                            | Behavioural Effect   | Potential Harm   | Possible Preventive Measures  |
|------------------------------------|--|--|---|
| <b>Point-of-sale (POS) selling</b> | Decision fatigue – consumer's cognitive capacity already taxed by purchase decision                            | Consumer fails to shop around and purchases expensive or low-quality insurance product             | Ensure separation between purchase and insurance decision; require later confirmation of decision |
| <b>POS selling</b>                 | Proportional coding – consumer judges price of insurance relative to product price                             | Consumer is insensitive to price differences between equivalent insurance products                 | Ensure separation between purchase and insurance decision; require later confirmation of decision |
| <b>POS selling</b>                 | Obligation to reciprocate – consumer feels obligation given time devoted to overall transaction by salesperson | Consumer fails to shop around and purchases expensive or low-quality insurance product             | Ensure separation between purchase and insurance decision; require later confirmation of decision |
| <b>Excess-premium trade-off</b>    | Cognitive limit on information integration – consumer overweights excess relative to premium                   | Consumer purchases insurance with excessive premium to avoid unlikely requirement to pay an excess | Employ worked examples; use more intuitive description for excess                                 |

## 1. INTRODUCTION

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In recent years there has been an accumulation of evidence and growing understanding that consumers frequently depart from the self-interested utility-maximising models of traditional microeconomics. Behavioural economics and behavioural finance have brought into economic analysis a richer psychological perspective on how individuals make financial decisions. Much of this work has been based on the incorporation of methods from experimental psychology, particularly the use of controlled experiments, including laboratory, online, survey and field experiments. These complement more traditional empirical tools used for economic and financial analysis, such as economic modelling and the econometric analysis of administrative and survey data. Used well, experiments allow different research questions to be addressed and causal influences on behaviour to be more precisely identified. The result of these scientific innovations is a rapidly expanding literature that documents many systematic influences on economic financial decision-making. Recent comprehensive overviews of relevant work can be found, from the perspective of behavioural economics and finance, in Baddeley (2013), and, from the perspective of economic psychology, in Ranyard (2018).

Broadly speaking, empirical results in behavioural economics and finance reveal that consumers sometimes, perhaps often, make errors in their decision-making. Furthermore, evidence suggests that specific errors are systematically related to the context in which they are made. The implication is that whoever determines the decision-making context, or “choice architecture” (Thaler and Sunstein, 2008), can influence the outcome of decisions – for better or for worse. Unsurprisingly, therefore, these scientific advances raise multiple public policy issues (e.g. Shafir, 2013), among which consumer protection features prominently (Miklitz et al., 2011). Such concerns are often expressed specifically in relation to retail financial products (Barr, Mullainathan and Shafir, 2008; Barr-Gill and Warren, 2008; Mak and Braspenning, 2012), for which the concern is arguably amplified. The decisions involved are often among the most significant economic decisions that households make and, consequently, have potentially large implications for wellbeing.

These concerns would be less troubling if the market offered its own

solutions, such as by incentivising providers to help consumers to understand their products and make sound financial decisions. Alas, adaptations of orthodox microeconomic models to include the possibility that consumers depart from optimal decision-making do not offer comfort. Rather, profit-maximising providers may have an economic incentive to exploit or confuse consumers where the latter fail to incorporate all relevant product information by ‘shrouding’ attributes (Gabaix and Laibson, 2006) or struggle to comprehend complex price structures (Carlin, 2009; Grubb, 2015), with competition likely to exacerbate rather than diminish these undesirable incentives. Increasing complexity makes it more difficult for consumers to comprehend the structure of the product and, perhaps crucially, the means by which the provider makes its profit. Furthermore, it is important to understand that such problems are likely to persist even where regulations demand full disclosure of information; although an important principle, transparency does not eradicate consumer mistakes (Loewenstein, Sunstein and Golman, 2014). Challenges to good financial decision-making take on multiple forms.

The current paper is an international literature review that aims to locate, describe and evaluate evidence that specific financial product features, broadly defined, have negative effects on financial decision-making. Its purpose is to ease the difficulty for policymakers and researchers of keeping track of the multitude of empirical findings and their implications, which span disciplinary boundaries and are expanding at a rapid rate.

The paper is structured as follows. Section 2 defines the key terms and scope of the review – what is included and what is not. Section 3 begins the main body of the work by reviewing credit products on a product-by-product basis, with a separate subsection for each major category. Section 4 deals with investment products in the same way and Section 5 with insurance products. Section 6 summarises the findings, describes some commonalities across different product categories, and discusses some of the implications for policy.

## 2. METHODOLOGICAL APPROACH

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### 2.1 SCOPE OF THE REVIEW

The focus of the review is the most common retail financial products that account for the main business-to-consumer transactions and fall under the remit of general consumer financial regulation. Specifically, we cover evidence in relation to six broad categories: credit cards, personal loans, mortgages, non-structured retail investment products, structured investment products and insurance. The review does not consider the potential impacts of changing interfaces between providers and customers, such as price comparison websites, online calculators, mobile banking apps, online financial trading, or other innovations often described under the label 'fintech'. Nor does it cover products that are typically sold under bespoke regulatory or legislative regimes, such as pension products.

### 2.2 SOURCING MATERIAL

One challenge in compiling this review was the variety of source material. We initially attempted a systematic and documented approach, with lists of keywords to be exhaustively searched against a finite list of research databases and specific titles. The volume and variety of relevant material turned out to greatly exceed initial expectations, however, with the result that this approach was unworkable. An additional complication was the different nomenclature used across jurisdictions to describe the same product or product feature. To supplement the systematic search that we began, search-engine algorithms were used to uncover similar articles to those cited (e.g. Mendeley sends lists of recent articles on topics one expresses an interest in). Where a relevant paper was located, we searched papers that had cited it, in order to source other studies that addressed the same topic. Multiple disciplines and methods are represented. Some high-quality research covered is 'grey literature' – that is, publications that lie outside the system of peer-reviewed academic papers, including in-house dissemination platforms of regulatory bodies and international organisations. A large proportion of studies are recent, which means that at the time of writing many papers that demand to be included are in working paper form and still going through peer-review and more formal publication.

Given the above, while we have done our best to locate all relevant studies,



there is no guarantee that we have done so. Fortunately, however, the aim of the present exercise is to identify phenomena rather than to estimate effect sizes or assess the balance of evidence for and against a position. Thus, it is more likely that we have missed a relevant phenomenon than that the phenomena we identify are not soundly established. Nevertheless, as with all reviews as distinct from more formal meta-analyses, the priority accorded to specific studies is largely a matter of subjective judgment on the part of the authors.

### **2.3 WHAT CONSTITUTES A PRODUCT ‘FEATURE’?**

The primary criterion for inclusion in this review is whether the study seeks to associate one or more features of financial products with the quality of consumer decision-making. We define the notion of a product ‘feature’ broadly, to encompass not only specific attributes of the product, such as whether it has a variable rate or a capital guarantee, but also emergent properties of the product and how the product category presents itself to the consumer. Thus, where a product contains many attributes, perhaps increasing the likelihood that a key attribute is ignored by the consumer, the resulting complexity counts as a feature of the product. Where a product is sold with certain attributes made explicit and others less so (for instance, where the financial cost of a loan is less salient than the monthly repayments), the difference in salience is considered to be a product feature. Where a disclosure presents key product information, such as past performance or a benchmark repayment rate, this disclosure also constitutes a product feature. However, we draw a distinction between disclosures and provider-specific marketing claims, which we do not count as features of products. For instance, a marketing claim by a credit provider that they offer ‘the lowest variable rates’ would not be considered a product feature; an interest rate discounted for 12 months would. The logic here is that, when a type of disclosure is common across competing offerings within the market, such that it is an essential or common aspect of consumers’ experience of the category of product, it constitutes a feature of the product.

### **2.4 ASSESSING DECISION-MAKING QUALITY**

The main body of the review concentrates on studies that associate features of the product, as just defined, with the quality of consumer decision-making. Different studies use different criteria to make inferences about

whether decisions are good or bad. Some of the most widely used are as follows:

- **Consistency.** When a product feature leads to inconsistent decisions, it is reasonable to infer that consumers are struggling to make decisions that match their real needs or preferences. In contrast, where decisions are consistent, it is more likely that the consumer understands the product on offer.
- **Choosing ‘dominated’ products.** When product A is as good as product B on all attributes but better on at least one, choosing product B is an objectively bad decision because it is ‘dominated’ by product A. In other words, there is no set of preferences that can justify choosing product B over product A. Evidence of consumers choosing dominated products suggests that the product in question is not well understood or that consumers are unable to integrate the attribute information accurately.
- **Knowledge or comprehension.** Where consumers cannot correctly answer questions about a product that are relevant to their financial outcomes, researchers infer that the decision to purchase it is more likely to be unsound.
- **Decisions not aligning with theoretical predictions.** Researchers can compare observed behaviour with what theoretical models predict behaviour should look like (i.e. with the output of normative models). Sometimes it can be argued that no reasonable logic matches the observed decision, implying that a factor that should be unimportant is influencing decisions.

For each of these criteria for assessing the quality of consumers’ decisions, it may be possible to generate counterexamples or to find arguments that rationalise or justify consumers’ choices. For instance, consistency is not a bulletproof measure of good decision making because it is possible to make *consistently bad* decisions. Rather than beginning with an assumption that some of these criteria are better or more persuasive than others, throughout the review, we assess the weight of evidence on a case-by-case basis.

## 2.5 BROADER EVIDENCE LINKING FEATURES WITH BEHAVIOURS

In addition to describing studies that explicitly test for a link between the quality of decision-making and features of each financial product, we also highlight studies that link the product category with a specific behavioural phenomenon in general. For instance, with respect to credit cards, we describe evidence that some consumers struggle to control their spending and appear not to understand the repayment dynamics of credit cards in

general. This type of evidence, while not directly addressing the issue at the heart of the review, nevertheless provides an important empirical backdrop for interpreting those studies that do. Similarly, there are relevant studies that demonstrate links between certain financial product features and particular subsets of consumers, with implications for the quality of decision-making. These too are important to include, because a product feature may attract consumers for whom the product is not financially suitable. Where providers are meant to sell financial products only to those for whom they are suitable, product features that potentially undermine this aim are important to identify. For instance, mortgages with low introductory interest rates are suitable for consumers who expect an income increase in the near future and wish to engage in consumption smoothing. Yet this feature may also attract present-biased consumers with no expected income growth, for whom they are unsuitable.

### 2.6 TRIANGULATION OF METHODS

We avoid being prescriptive about methods, where again we adopt a case-by-case basis approach. Whether evidence should be considered stronger if it arises from laboratory experiments, surveys, mass transaction data or field studies is not only a matter of subjective scientific judgment, but also depends on what research question is being addressed. Nevertheless, we do point out instances where the triangulation of multiple methods points to the same conclusion. In our view, this generally strengthens the inference that can be made about the validity of the finding. However, this argument is not an absolute. In some cases we also highlight single studies that are highly persuasive; for instance, because of the high quality of the data or robustness of the study design.

We intentionally do not provide sample sizes for every study reviewed. Sample size alone is rarely indicative of the quality of a study or the strength of the inference that can be drawn from its results. This is especially true when a review covers multiple methods, such as surveys and laboratory experiments, which differ in their ability to identify causal effects from a given sample size. However, we provide sample sizes for particular studies where we have judged this information relevant in assessing its contribution to knowledge.

Lastly, with regard to our approach, where possible we have aimed to indicate not only the statistical significance or otherwise of empirical results,

but also associated effect sizes. This is particularly important in any area where a negative impact on consumers must be weighed up against the costs associated with a practice or regulation designed to alleviate it.

### 3. CREDIT PRODUCTS

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From a psychological perspective, credit cards, loans and mortgages share some commonalities. All involve the need to balance immediate desires against future payments. All require consumers to come to grips with the nonlinear relationships that underlie the compounding of interest and the paying down of debt over time. Kamleitner, Hoelzl and Kirchler (2012) provide a detailed review from a psychological perspective. Common to these credit products seems to be difficulty in estimating how long it takes to pay off debt and the associated cost (Ranyard and Craig, 1993; Overton and MacFadyen, 1998; Yard, 2004; McHugh, Ranyard and Lewis, 2011; Soll, Keeney and Larrick, 2013). Nevertheless, each of these credit products has its own idiosyncrasies. Credit cards are a dynamic and transactional form of debt, potentially involving multiple overlapping spending and repayment decisions on a monthly basis. Mortgages are associated with spending on a specific product and constitute a much larger and longer form of credit than personal loans. Despite some commonalities, therefore, in the present review we consider these financial products separately and in turn.

#### 3.1 CREDIT CARDS

##### Five Key points

- Many consumers do not repay credit card debt in a way that minimises the cost of credit. Higher interest balances are not paid off earlier. Low-yield savings and high-interest credit-card debt are often held simultaneously.
- Credit-card repayments are strongly influenced by the minimum repayment amount suggested by lenders. These amounts act as an anchor on consumers' decisions regarding how much to repay, possibly because they are perceived as a form of advice.
- Worked examples involving higher repayment amounts can also act as anchors, both pulling up low repayments and simultaneously pulling down higher ones, with the potential to reduce payments on average.
- Credit-card use is affected by changes to credit limits. Even customers whose balances are not close to their credit limit tend to increase borrowing in response to increases in their credit limits. Younger and less-educated individuals change their spending more in response to changes in credit limits.
- Many credit-card fees are not incurred consciously by consumers. An analysis of outcomes after the enactment of the US Credit Card Accountability Responsibility and Disclosure (CARD) Act (2009) (which

banned many of these fees) suggests these fees were essentially ‘hidden’ from consumers and designed to increase profits. Banning the fees has been of substantial benefit to consumers.

## Introduction

Credit cards are one of the most ubiquitous consumer financial products. The majority of households in developed countries possesses at least one credit card (e.g. Schuh and Stavins, 2015). Credit cards provide more than credit. They offer a convenient and documented payment method, facilitate online purchase, are required by some firms for deposit or guarantee purposes, can make it easier to return goods, and reduce the need to carry cash. Credit cards, therefore, confer clear consumer benefits.

The first section describes background, non-feature evidence that provides context for the subsequent feature-specific evidence. How consumer decision-making is affected by suggested repayments amounts, credit limits and hidden fees will then be discussed in turn.

There is evidence that some consumers struggle to control spending with credit cards and that many do not comprehend the dynamics of debt repayment. This evidence, although based predominantly on US customers, serves as useful background for considering the role of specific features of credit-card offerings.

With respect to spending, people will spend more on credit cards than they will in cash in the same situation (Feinberg, 1986; Prelec and Simester, 2001), implying that deferring payment increases willingness to spend. Controlling for background characteristics and credit constraints, Meier and Sprenger (2010) found that individual customers who were biased towards immediate rather than delayed rewards in behavioural experiments also had higher credit-card debt and a higher probability of rolling over their debt. The study found that debts of these “present biased” individuals were, on average, approximately \$500 higher than those of non-biased individuals. The response of customers to changes in their terms also indicates potential difficulties in controlling spending; for instance, where borrowing responds more to interest-rate reductions than to equivalent increases (Gross and Souleles, 2002).

Spending on credit cards generates the need for repayments. Many consumers appear not to understand the associated repayment dynamics.

Most straightforwardly, consumers underestimate the interest rate charged on their card. Based on survey data, Frank (2011) found the average underestimate among US consumers to be approximately one-third, with higher underestimation among consumers more inclined to optimism about future economic indicators and personal longevity. Patterns of repayment across products appear to involve following dominated strategies. For instance, some consumers hold significant levels of interest-bearing debt simultaneously with low-yielding assets that could be used to pay off some of the debt (Gross and Souleles, 2002). Similarly, based on data from a large sample of UK accounts, holders of multiple cards pay off debt in proportion to balances rather than paying off the card with the higher interest rate first (Gathergood et al., 2017). Similarly, Ponce et al. (2017) found that Mexican credit-card consumers with multiple cards did not allocate spending to lower-interest cards and increased spending in response to introductory rate offers, but did not also reallocate debt between cards to reflect the new rate. In an online scenario experiment in which US consumers made hypothetical decisions over multiple credit cards, Besharat, Carrilat and Ladik (2014) found that participants were inclined to pay off debt on smaller balances despite interest-rate differences.

Consumers do not seem to perceive the impact of interest accurately. In another online experiment, Soll, Keeney and Larrick (2013) found that almost 90 per cent of a sample of US consumers underestimated the time it would take to pay off a credit-card debt at a constant low repayment rate, while over 40 per cent failed to realise that paying off less than the interest would cause the balance to increase. In a large experiment conducted at a US bank, 40 per cent of around 150,000 consumers failed to choose the (ex-post) cost-minimising option when choosing between two cards, one of which had a lower annual fee, the other a lower interest rate (Agarwal et al., 2015a).

These findings provide the backdrop when considering studies on specific product features. Given that many consumers, first, struggle with self-control in relation to spending on credit cards and, second, are uncertain of consequences in relation to associated repayment, they may be susceptible to product features that exacerbate self-control problems or that direct consumers towards specific repayment options.

### **Anchoring on Minimum Repayments**

Anchoring effects refer to the tendency of decision-makers to be influenced by arbitrary or irrelevant numbers (Tversky and Kahneman, 1974), or ‘anchors’. Two potential anchors are discussed in the section: (i) minimum repayments – this is set by the credit-card provider; (ii) the CARD Act three-year repayment – the CARD Act stipulates that, in addition to the minimum repayment, bills must show the repayment amount to pay off the bill in full in three years. We review multiple studies that use different methods to show how repayments on credit cards are influenced by these suggested or example repayments displayed on bills. The impact on the quality of decision-making is proxied by the degree to which disclosing a potential repayment amount lowers repayments. While in any one case it is not possible to say whether a given repayment is disadvantageous for the consumer, where the presence or absence of the anchor produces inconsistent repayments, the implication is disadvantageous decision-making. Furthermore, where a disclosure generates repayments that are lower than they would otherwise have been, the implication is that consumers roll over more debt and pay more in interest payments, with likely negative consequences.

In a mixed-method study, Stewart (2009) first showed that, among a sample of 248 UK credit-card users, repayments (measured as a proportion of the balance) and minimum repayments had a significant correlation of 0.57. The study then deployed an experiment with 413 participants who received a hypothetical credit-card bill and were asked to decide how much they would repay. The presence or absence of a minimum repayment was manipulated between subjects. Participants who received a bill with no minimum repayment opted to repay an average of 70 per cent more. The real and experimental data were in close accord. These experimental results have since been closely replicated by Navarro-Martinez et al. (2011) in an online experiment with US consumers. In a follow-up experiment conducted online, 481 US consumers were randomised to receive one of seven credit-card statements, which varied in minimum repayment, as well as combinations of disclosures of interest costs, time to pay off the debt at minimum repayment levels, and the level required to pay off the debt in three years. The presence of a minimum repayment again had a consistent, negative and significant effect on repayments, although no significant difference was recorded between minimum repayments of 2 per cent and 5 per cent of the balance. All other disclosures tested had no discernible



impact. Navarro-Martinez et al. also analysed data for UK accounts from multiple providers over a period of 21 months, amounting to more than half a million credit-card statements and associated payments. Higher minimum repayments were linked to higher repayments for most consumers among providers who had a single minimum repayment policy. The reverse relationship was recorded among providers with multiple policies, who appeared to be segmenting customers by demanding higher monthly payments from riskier customers. Taken together, these two multi-method studies provide good evidence that a minimum repayment acts as an anchor that lowers repayment levels.

In addition to these investigations specific to minimum repayments, several studies have focused on provisions in the US CARD Act. It requires that bills use an example table to make explicit both how long it will take to pay off the debt at the minimum repayment rate, together with the total cost, and how much would need to be repaid each month to pay it off in three years (provided this is greater than the minimum repayment), again together with the total cost. Hershfield and Roese (2015) hypothesised that disclosing both rates might result in even lower repayments than just disclosing the minimum repayment, especially as consumers who would otherwise repay more might be drawn towards the 'middle option' of the three-year amount. This hypothesis was tested in multiple studies conducted online. In an initial study referring to the consumer's most recent bill, those shown both rates paid off a lower proportion of their balance, especially if they recalled paying attention to the example table. However, under the Act, disclosure of the three-year amount is confounded with higher balances and interest rates. Thus, follow-up experiments employed hypothetical statements and repayment choices to manipulate disclosures independently. Chosen repayment rates were lower among those given both disclosures, with the modal payment moving towards the three-year payoff amount. Participants also tended to describe this as an 'appropriate' amount to pay, suggesting that it was a normative cue. These findings with respect to a third disclosure of a repayment rate, in addition to the minimum repayment and full balance, raise the issue that any example repayment has the capacity both to pull up low repayments and simultaneously to pull down higher ones, with the potential to reduce payments on average. In keeping with this interpretation, Salisbury (2014) reports two online hypothetical experiments with US consumers in which disclosure of the three-year amount both decreased the proportion paying

more and increased the proportion paying less, with little overall effect.

Given the above evidence that the three-year rate disclosure failed to raise repayments, McHugh and Ranyard (2016) tested two higher repayment anchors in an online hypothetical experiment with a mixed student/public sample in the UK. A first experiment disclosed the amount required to pay off the balance in two years (to match Australian regulations), for a range of balances from £435 to £10,000. While minimum payment anchoring was again replicated across the range of balances, disclosure of the two-year anchor backfired: instead of increasing average repayments, it reduced them. A second experiment instead tested a nine-month anchor (i.e. a suggested repayment of 12 per cent of the balance), which did increase mean repayments. The authors note that this result differed from a condition tested in Hershfield and Roese (2015) in which a higher anchor of 40 per cent of the balance generated no effect, but suggest this may be due to that study using a much lower balance. In their second experiment, McHugh and Ranyard used the average UK balance of £990 and two higher amounts. Thus, while all studies point to significant anchoring effects, in which individual consumers choose to repay at lower or higher rates than they otherwise would, the overall effects of specific anchor rates may vary by level of balance, market and perhaps other factors, but are perhaps best estimated by mass transaction data.

### ***Evidence from Mass Transaction Data***

Given the extent of variation in behaviour across consumers, the direction of aggregate effects may depend on the composition of small samples. Thus, experimental approaches are better at demonstrating the existence of anchoring phenomena than at estimating their overall effects. Mass transaction data are superior for this purpose. In the specific context of the CARD Act, Agarwal et al. (2015b) exploited access to a large volume of account data for the eight largest US banks, covering 160 million credit-card accounts from January 2008 to December 2012. These data showed that the proportion of customers paying the three-year rate increased by a small amount, but suggested no overall change in repayments from the three-year rate disclosure, indicating that the new disclosure acted as an anchor that dragged repayments both up and down. Similarly, Keys and Wang (2016) used large-scale data from the Consumer Financial Protection Bureau (CFPB) to analyse 40 million observations between 2008 and 2013, testing for changes in repayments when a provider's minimum repayment

formula changed. The data revealed bunching of payments close to the minimum, despite changes in the minimum repayment, suggesting an influence of anchoring rather than liquidity constraints. The study estimated a lower bound of at least 10 per cent of consumer accounts anchored to the minimum rate and a smaller proportion to the three-year payment rate, which was adopted by less than 1 per cent. Thus, while consistent with the direction of experimental results, mass transaction data suggest a smaller effect of a third anchor than implied by experimental studies. These findings are more substantially at odds with those of Jones, Loibl and Tennyson (2015), who recorded an increase in repayments following the introduction of the CARD Act. However, this last study was based on self-report data from a repeated monthly cross-sectional telephone survey of just 300–500 households. Much greater evidential weight must be given to the findings based on mass transaction data.

### **Credit Limit Effects**

There is evidence from multiple methods that credit use is affected by changes to credit limits. Gross and Souleles (2002), using data for 24,000 US accounts tracked over 24 months, found that even customers whose balances were not close to their credit limit tended to increase borrowing in response to increases in their credit limits. The marginal propensity to consume was estimated at 10–14 per cent; in other words, a €1 increase in a credit limit resulted in a €0.10–€0.14 increase in credit use. However, this effect was smaller among customers further from their limit. Soman and Cheema (2002) investigated the same effect in a series of experiments and via survey data. In their hypothetical choice experiments, higher credit limits induced higher spending.

One possibility is that this finding is related to consumers' struggles to rein in spending on credit cards; the limit increase attracts attention, generates temptation, or signals norms regarding reasonable debt levels. Like a minimum or recommended repayment, it may simply act as an anchor. However, that credit use increases with credit limits does not necessarily imply that some consumers are making poor decisions. As Gross and Souleles (2002) discuss in detail, consumers may sensibly hold balances at a level that provides a precautionary buffer of liquidity, so that an increase in the limit leads them quite reasonably to use more credit to smooth consumption and manage financial risk. However, Soman and Cheema (2002) independently manipulated credit limits and total individual liquidity

within a hypothetical experiment, finding that spending decisions were driven by the credit limit, not by liquidity. Additional experiments and survey data suggested that the credit limit was being interpreted as a signal of likely future earnings. To the extent that credit limits are, in reality, linked to future earnings, this, again, is not an unreasonable inference for consumers to make, but it does potentially mean that providers can manipulate levels of credit-card spending through alterations in credit limits. In this context, it is notable that Soman and Cheema (2002) found in two separate surveys that the influence of credit limits on credit-card spending was greater among younger and less-educated respondents.

It is not clear to what extent this association between credit limits and credit use has implications for situations where regulations prevent providers from increasing limits unless in response to consumer requests, such as in Ireland. Presumably, any indication from a provider that they would be willing to grant an increase carries a similar signal to an increase itself, but in general such regulations are likely to reduce both the ability of providers to exploit any behavioural impact of higher credit limits and the incidence of limit increases generally.

### **‘Hidden’ Fees**

Consumers who take out new credit cards incur higher rates of fees than existing customers. One study estimated that fee expenditure in the US market fell by 75 per cent over the first three years of an account (Agarwal et al., 2008). Many of these fees were not salient to consumers; for example, were described only in the small print. Combined with the evidence that these fees often do not feature in consumers’ decision-making until they are incurred, they can in this sense be considered ‘hidden’ – a term which does not necessarily imply that fees are deliberately concealed, only that from the consumer’s perspective they are absent from view when it matters. As described in section 3.1.2, the study of Agarwal et al. (2015b) found small effects associated with the disclosure of the three-year repayment rate introduced by the CARD Act, but recorded much more substantial effects associated with new regulations to limit fees. They tested the combined effect of the following provisions of the Act:

- (1) Banning fees for breaking credit limits unless the consumer opted in to an agreement to honour limit-busting transactions and pay a fee
- (2) Capping late fees and over-limit fees
- (3) Permitting only one fee per violation in any billing period
- (4) Banning non-use fees
- (5) Limiting rate increases linked to borrower behaviour
- (6) Giving earlier notifications of interest-rate changes and other account information

Treating the Act's introduction as a natural experiment, Agarwal et al. compared consumers' use and cost of borrowing on credit cards against the same outcomes for small business cards not subject to the regulations. The results revealed a reduction in borrowing costs equivalent to an annualised 1.6 per cent of the average balance, rising to over 5 per cent for consumers with low credit scores. There was no indication of changes to interest rates, debt levels or income from other fees that would suggest that providers recouped the lost revenue via other means. Overall, the average saving to US consumers was estimated at \$12 billion per year. Given the provisions in the Act, the implication is that consumers were previously unaware of, paid insufficient attention to, or were excessively optimistic about avoiding fees.

Ru and Schoar (2016) used a different approach to generate further evidence that consumers struggle to factor in fees. They analysed panel data recording receipt of direct marketing material by a sample of US households. Cards offered to consumers with lower educational attainment tended to have back-loaded fee structures (e.g. higher late or over-limit fees, bigger difference between initial interest rate and final rate), whereas those offered to consumers with higher levels of educational attainment tended to have upfront fees (e.g. annual flat fee). Whether fees were front- or back-loaded was also linked to reward programmes likely to appeal to different market segments. The use of back-loaded fees and teaser rates increased in response to state-level increases in unemployment insurance, which reduced credit risk. In other words, with greater unemployment insurance coverage, consumers would be more likely able to pay these fees in the event of job loss. The clear implication of these marketing techniques is that less sophisticated consumers could be attracted to cards with back-

loaded fees and lower initial rates.

CFPB research, using a dataset that included nearly 85 per cent of all credit cards in the US, revealed similar differences in responses to changes in APR and hidden late payment fees by prime and subprime consumers (Alexandrov et al., 2018). Low-risk (prime) cardholders, who are generally considered more sophisticated users of credit, were more sensitive to changes in late payment fees than higher-risk (subprime) cardholders, who often had lower socioeconomic status and lower educational attainment. Prime users decreased balances as both APR and late fees increased, and vice versa. Subprime users, however, actually decreased balances as late fees decreased. This is an anomaly under the rational consumer model, but according to the authors is in line with theories of limited attention (Mullainathan and Shafir, 2013) for consumers under financial strain. When unable to process all relevant information, consumers employ a rule-of-thumb to avoid the worst outcome, such as paying off a certain amount every month to avoid high late fees. Mullainathan and Shafir (2013) postulate that reductions in late fees caused attention to shift to interest-rate charges. The year after the price cap imposed on late fees by the CARD Act, subprime users were more sensitive to APR. The reduction in balances given a decrease in fees was 25 per cent larger in low-income US counties where financial stress was more likely.

Corroborating evidence of attentional constraints of credit-card consumers comes from a randomised controlled trial in Brazil (Medina, 2017). This study was conducted in conjunction with a personal finance platform. The intervention group received smartphone reminders to make a credit-card repayment to avoid late fees; the control group did not. The treatment was successful in its narrow goal of reducing late fee costs, but many incurred higher bank overdraft fees instead. The novel aspect of this study is that it is the first to document trade-offs when influencing consumers with informational ‘nudges’. Previous work (e.g. Chetty et al., 2014 on saving behaviour) documents no detrimental side-effects of nudges.

The evidence of cognitive and attentional constraints tallies with the survey evidence of Lusardi and Tufano (2015), who found that respondents with lower levels of ‘debt literacy’, measured by answers to objective comprehension questions, were more likely to incur fees for paying late, breaking limits, using cash advances and paying only minimum repayments.

These authors estimated that one-third of charges and fees paid by those with low debt literacy were attributable to lack of knowledge.

Experimental research by the CFPB and the World Bank provides further evidence that fees go unnoticed unless regulation mandates ensure they are salient to consumers (Carpenter et al., 2017). This task concerned the choice of a prepaid card, which is different to a credit card (because the money has to be loaded onto the account first) but has many design features in common, particularly in terms of fee structure. This laboratory experiment was a pre-test of a CFPB intervention to bring in simplified short-form disclosure for prepaid cards.

Participants had to choose between the following three prepaid cards, which were randomly assigned the labels A, B and C in the task:

- ‘Default card’ – its fees were selected from ranges typical of the market
- ‘Dominated card’ – similar to the default but worse on one attribute
- ‘Best card’ – designed to be optimal for the individual based on preferences obtained at an earlier experimental session

Participants were randomly allocated to one of three groups:

- Control condition: Fee disclosure was stated in the ‘fine print’ as was the market norm at the time
- CFPB disclosure: Fee information printed in a tabular format that facilitated comparison
- Enhanced disclosure: Required arithmetic printed to make comparison easier for consumers

Results showed that, in the control condition, the majority did not choose the best card, and 20 per cent chose the dominated card. The improvement in the CFPB treatment was minor. In the enhanced disclosure condition, there was a statistically significant reduction in the proportion choosing the dominated card relative to the two other groups, but no pronounced movement towards choosing the best card. The authors infer that simplified disclosures reduce the likelihood of consumers making an obvious error; that is, choosing the dominated option.

### Credit-Card Summary

Consumers struggle both to control spending on credit cards and to comprehend the dynamics of repayment of credit-card debt. Against this backdrop, there is strong and converging evidence from multiple methods that minimum repayments on bills act as anchors, lowering repayments and hence increasing levels of debt and associated costs. A conservative estimate of the lower bound is that this phenomenon affects 10 per cent of credit-card customers. The figure could be substantially higher. Disclosures of additional potential repayment levels, such as those mandated by the US CARD Act, also act as anchors, increasing the repayments of some consumers who would otherwise repay less, while decreasing the repayments of some who would pay more. Experimental effect sizes associated with this latter effect are larger than effects recorded in transaction data.

As well as minimum or example repayments, there is evidence that credit limits alter levels of spending on credit cards even when individuals are not credit-constrained. Evidence from multiple methods suggests that this is because the credit limit is treated as a signal about future earning potential, with greater impact on the young and less educated. The volume of evidence is, nevertheless, lower than for minimum payment anchoring. Further investigation of these effects would be useful.

There is also evidence that consumers incur fees that they are either unaware of, pay insufficient attention to, or are too optimistic about avoiding. By placing regulatory restrictions on fees, the CARD Act has been of substantial benefit to consumers.

These findings offer challenges to policymakers aiming to assist the financial decision-making of consumers. Notification of the minimum repayment seems only reasonable where there is a fee for failing to make it, but disclosure of higher repayments has largely ambiguous effects. One potentially useful finding that may warrant further study is that a disclosure simply reminding the consumer that they could pay right up to the full balance increased repayments (Hershfield and Roese, 2015). However, there may be limits to what can be achieved via disclosure. A recent trial of multiple forms of written disclosures mailed to 160,000 indebted customers in Mexico recorded nil or only marginal impacts (Seira, Elizondo and Laguna-Müggenburg, 2017). Additional challenges (or perhaps opportunities) for



both policy and research surround the fact that increasing numbers of credit-card customers do not receive a paper bill, but instead engage with their accounts only electronically.

## 3.2 PERSONAL LOANS

### Five Key Points

- Consumers' intuitions for loan repayment dynamics are inaccurate. Repayment time, given principal, APR and monthly repayment, is often underestimated, but financial cost, given other loan attributes, is overestimated.
- Superficial aspects of loan offerings – such as the first figure of the monthly repayment, or even the picture on the loan advertisement – influence consumer decisions.
- When choosing between loans of different duration, consumer decisions are influenced by whether monthly repayment or total financial cost is given greater prominence. When the latter is emphasised, consumers choose shorter loans, and vice versa.
- Consumers do not consider APR on a loan as equivalent to price on a product.
- Consumers are more sensitive to interest rates when the cost is expressed in cash terms. Describing the cost of a payday loan in cash terms reduced borrowing.

### Introduction

A personal loan is perhaps the most straightforward form of credit, in that the principal, repayment and term are typically decided at the point of initiation of the loan. Once the principal, APR and term of a loan are set, the monthly repayments and financial cost (or cost of credit) are co-determined. Nevertheless, there is evidence that the essential relationships are challenging for many consumers. Here we first describe background literature on how consumers struggle to comprehend the structure of loans. Subsequent feature-specific sections discuss evidence on: (i) how variation in loan attribute presentation alters decisions and (ii) the impact of high-cost loan warnings.

### Background Evidence

Multiple studies have provided participants with a subset of loan attributes and then elicited judgments of the co-determined attributes. The findings reveal systematic biases in consumers' intuitions. When asked to estimate how long it would take to pay off a loan with a given principal, monthly repayment and APR, experimental participants tended to produce underestimates (Ranyard and Craig, 1993; Overton and MacFadyen, 1998; Yard, 2004). Yet, given a principal and APR, estimates for the financial cost of one- or two-year loans were systematically too high (McHugh, Ranyard

and Lewis, 2011), seemingly because participants failed to account for the paying-down of the principal.

Based on these inconsistencies and qualitative evidence, Ranyard and Craig (1995) argued that consumers have two distinct mental representations of loans and that they tend to make judgments and decisions based on one or the other. First, they might represent the loan within a budgeting period, usually a month, in which they compare the repayments with their monthly income and the benefit derived from whatever the money was spent on. Second, they might represent the loan across its total duration, comparing the amount borrowed (and spent) against the total repaid. Following Thaler's (1985) notion of mental accounting, the argument is that consumers will struggle to consider these relationships simultaneously and instead view a loan one way or the other, perhaps even flipping between the two kinds of representation.

A corollary of this theory is that a loan challenges consumers' cognitive capacity, that it has too many aspects for all to be considered simultaneously when making a decision. This perspective is consistent with other experimental findings. Consumers struggle to weight different price components of a loan equally in cash terms (Hermann and Wricke, 1998) and are influenced by superficial aspects of attributes, including the first digit of the monthly repayment amount (Wonder, Wilhelm and Fewings, 2008) and whether repayments fall just below round numbers (Estelami, 2001). In a randomised controlled trial involving 53,000 households in South Africa, Bertrand et al. (2010) showed that superficial aspects of a direct mailshot, including the number of example loans, whether a particular use for the loan was shown, and whether it contained a photo of an attractive woman, could alter demand by the equivalent of one-quarter of the interest rate.

These studies provide useful background for considering how the features of loans might influence the quality of decisions. If consumers have difficulty comprehending the main relationships between key attributes and taking all aspects of offerings into account, then decision-making may be affected by which subsets of the attributes are made explicit and the saliency or otherwise of the primary price component, namely the interest rate.

### Explicit Presentation of Loan Attributes

The four key features of a personal loan are: (i) APR; (ii) Term; (iii) Monthly Repayment and (iv) Total Financial Cost (or, equivalently, the cost of credit). While all of these features are likely to be listed in documentation provided to consumers when they take out a loan, marketing material and disclosure at the point of decision vary greatly by provider with regard to which attributes are explicit and receive emphasis. Given this variation, laboratory and survey experiments have been employed to investigate its potential impact. The typical design records hypothetical consumer decisions while varying which of the co-determined attributes of a loan are made explicit at the point of decision. The ability to make consistent decisions across identical products when product features are explicit and non-explicit is used as an indicator of the quality of decision-making. Typically, choices are biased in ways that suggest the explicit attributes are given greater weight than co-determined non-explicit attributes. Ranyard et al. (2006) first demonstrated with a sample of 28 consumers that strong choice inconsistencies could be generated between pairs of loans of different APR and different length according to whether the financial cost information was explicit. Disclosing financial cost information at the point of decision increased the probability of opting for the shorter of two loans. In a larger study involving 241 account holders with a UK high street bank, McHugh et al. (2011) obtained responses to a survey experiment which required participants to imagine taking a loan for £7,500. Each respondent was shown the same nine pairs of loans. Each pair had a shorter and a longer loan, with the shorter loan possessing a higher repayment but lower financial cost, while either loan might have lower APR. The study manipulated whether both APR and financial cost were provided in addition to the term and monthly repayment. For some of the nine pairs, but not all, there were again inconsistencies in consumers' decisions, with financial cost information leading consumers to choose shorter loans.

One difficulty in interpreting these results is that decisions seem to be affected by the specific pairs of loans chosen, making assessment of the cause and size of the effect difficult. Lunn, Bohacek and Rybicki (2016) conducted a larger within-subject laboratory experiment in which participants made multiple binary decisions between loans under four different conditions: only term and APR explicit, monthly repayment also explicit, financial cost also explicit, all four explicit. APR differences were selected randomly from a range, loan terms varied systematically from one

to eight years, and the pairs differed in term by one or two years. All four conditions produced different patterns of choices, with the greatest divergence for loans under five years, which as a simple matter of mathematics is where the nonlinearity in the relationship between the term and monthly repayments is strongest. Relative to the base condition, consumers chose longer loans when the monthly repayment was explicit and shorter loans when the financial cost was explicit. The large majority of participants displayed this inconsistency. The effect of explicit financial cost information was greater when terms were separated by two years, suggesting that relative comparisons of cash differences had a particularly strong impact on choices. For loans of less than three years, more than one-quarter of binary decisions could be reversed by altering which of these co-determined attributes was explicit at the point of decision. In a follow-up experiment, providing consumers with an initial table designed to demonstrate the non-linearity of the term-monthly repayment relationship reduced but did not eliminate the effect.

These experimental studies provide evidence that the explicit presentation of a subset of the co-determined attributes may have a large effect on choices of personal loan. The evidence is derived from hypothetical choice experiments only, conducted in the laboratory and via surveys, but the effect size is substantial. Field evidence in relation to this effect in the market would clearly be very helpful.

### **Understanding Interest Rates: APR vs. Cash Cost**

One consistent concern in relation to personal loans is whether consumers truly understand how much they are paying in order to borrow. A number of the findings above imply that consumers do not view the APR on a loan as they might the price of a normal consumer good, since, when the relevant cash amounts (monthly payment and financial cost) are disclosed, additional weight is given to these amounts in decisions and choices are altered. Yard (2004) used a laboratory experiment to demonstrate that many people intuitively rank loans by cash cost rather than APR. This may help to explain why many consumers are willing to take short-term loans at very high interest rates. So-called payday loans often come with an APR more than ten times higher than the prevailing credit-card rate.

Bertrand and Morse (2011) investigated whether different kinds of price disclosures would reduce borrowing, in a randomised controlled trial (RCT)

undertaken with the cooperation of one of the largest payday lenders in the United States. All customers who entered 77 stores in 11 states over a two-week period were invited to participate in the research, and 21 per cent agreed to do so. They were randomised to receive disclosures on the envelope in which their cash was dispensed. One treatment listed the APR of the loan alongside a typical car loan, credit card or subprime mortgage (thereby highlighting that it was more than ten times greater than for these other forms of credit). The second treatment made explicit the cash cost of borrowing relative to a credit card. The third displayed a graphic showing the distribution, as a number of people out of ten, who renew payday loans over different periods. All treatments reduced the amount borrowed relative to a control condition. The cash comparison with a credit card produced the largest decline (11 per cent) in the proportion of customers who borrowed in the months following the intervention, with a larger effect for less educated borrowers and those with higher self-control (self-reported). The implication of this study is that borrowers did not fully appreciate the cost of borrowing until an intervention made it more explicit.

When these findings are considered alongside those in the previous subsection, it is difficult to avoid the conclusion that a substantial proportion of consumers do not properly grasp what credit is costing them. The APR is not treated as the equivalent of a price, until an intervention forces an explicit comparison. A straightforward further demonstration of this is that the addition of a simple warning message when an APR is high relative to the rest of the market is sufficient to significantly alter choices (Lunn et al., 2016).

### **Personal Loans Summary**

Personal loans generally represent a more static and straightforward form of borrowing than a credit card, for which multiple purchases and overlapping billing periods can make repayment dynamics more complicated. Nevertheless, the above studies imply that consumers are unable to make consistent decisions about loans. This is not caused by noise in the decision-making process, but instead results from systematic biases associated with how the attributes of loans are presented. When the cash cost of the loan is somehow made salient or explicit, it increases the likelihood of choosing a lower-cost option, including borrowing less or not at all in the payday loans study of Bertrand and Morse (2011) when the cash cost was compared to other credit products.

The empirical findings are arguably consistent with Ranyard and Craig's (1995) dual process account, but perhaps the central broader message is that many, perhaps most consumers, are not able to conceive of this financial transaction in the round; that is, with a clear idea of what they pay in return for what they receive. Thus, the evidence suggests that they are more influenced by the attributes that are immediately salient and less by co-determined attributes that are not. Furthermore, consumers are not sensitive to the interest rate as the primary determinant of value, unless prompted to be so.

Compared with empirical evidence in relation to features of credit cards, however, the evidence in relation to personal loans reviewed above does not involve such a broad mix of methods. In part, this reflects the richness of credit-card data and possibilities for tracking multiple decisions on individual accounts. Yet more field studies linking features of personal loans to financial choices and behaviour would help to confirm and extend the above findings and to give better estimates of the associated effect sizes.

For policymakers, the challenge may be to find the most beneficial way to regulate the presentation of information about personal loans, given that consumers struggle to take into account all relevant perspectives.

### 3.3 MORTGAGES

#### Five Key Points

- Comprehension of mortgage details is often lacking in ways that leave consumers open to unexpected charges – for example, unawareness of early repayment charges or of how often interest rates could change.
- Low rates of refinancing across countries suggest mortgage knowledge does not improve post-purchase.
- Disproportionate weight is given to the initial monthly repayment of a mortgage.
- Teaser introductory rates on mortgages often attract consumers for whom they are unsuitable products. Advertising patterns suggest such consumers are directly targeted by suppliers of teaser-rate mortgages.
- In an experimental setting, decision fatigue caused participants to choose higher-risk mortgages.

#### Introduction

Mortgages are typically distinct from other credit products with respect to the size of the principal and duration of the loan, as well as the fact that the

consumer's decision is often taken coincidentally with the decision to buy a house. For most households, mortgage choice is probably the largest and most complex financial decision they will make. Mortgages constitute the majority of consumer debt (Tufano, 2009). Product features that exploit behavioural biases in this market may therefore have the potential to generate considerable consumer detriment.

Qualitative investigations and survey responses reveal that consumers have a poor understanding of mortgage details (Lacko and Pappalardo, 2010) and tend to give "overwhelming weight to initial monthly repayments" (Miles, 2004, p.6), suggesting scope for product features designed to exploit behavioural phenomena (Bar-Gill, 2009).

The first section deals with background literature on poor understanding of mortgage terms and interest rates, and refinancing behaviour that suggests that the consumer predispositions that inhibit informed decision-making are not eradicated by buying a mortgage. The second section deals with complex mortgages that include features such as introductory rates or periods of interest-only repayments. How these mortgage features may cause consumer detriment by taking advantage of behavioural time preferences and cognitive constraints is discussed.

Although this literature review aims to be global in scope, an early note of caution is required on synthesising mortgage evidence across countries. The prevalence of mortgage types differs remarkably across time and place (Campbell, 2012; Badarinza, 2015). This means that a well-informed, sophisticated consumer in one country may choose the same mortgage type as a vulnerable, uninformed one in another country. However, it is still possible to highlight some commonalities with regard to interactions between product features and consumer behaviour.

### **Background Evidence: Complexity and Misunderstood Attributes**

The complexity of mortgage products can mean that it is difficult for consumers to notice or comprehend important attributes. One potential consequence is that comprehension may depend significantly on the type and quality of disclosure. Key properties of the mortgage can simply be missed. In the US at least, both experimental and survey data concur. In Lacko and Pappalardo's (2010) experiment, a sample of 819 recent purchasers of a mortgage (half prime and half subprime) were given cost



disclosure forms for two hypothetical mortgage loans. Half received the federally mandated disclosure and half a prototype developed for the study. In the mandatory disclosure group, substantial minorities could not identify the interest rate or recognise that the loan included a large balloon payment. Half this group could not correctly identify the loan amount and two-thirds did not realise there was a penalty for refinancing. The number of questions answered correctly was significantly higher for the group given the prototype forms. Bucks and Pence (2008) compared responses from the US Survey of Consumer Finances to data provided by lenders. The results showed that a majority understood the basics of their mortgage, the type, term and annual payment, but were uncertain about details such as the frequency at which interest rates could change. Susceptibility to interest-rate movements is an important aspect of a mortgage to understand, given the size and longevity of repayments. UK borrowers were asked in a national survey how they would cope financially with rate rises of 1, 2.5 and 5 percentage points (FSA, 2004). A substantial number of respondents stated that they would seek an alternative deal without seeming to realise that an interest-rate rise would apply to alternative lenders too.

This lack of comprehension of important properties of the product may have knock-on effects for comparability. Evidence from data on brokered mortgages suggests that it feeds through to paying excessively for brokerage services (Woodward and Hall, 2012). Using telephone survey evidence, Lee and Hogarth (1999) found that at least 40 per cent of recent mortgage purchasers in the US did not understand that the advertised interest rate could be combined with fees to make a comparable APR.

It is possible that first-time mortgage buyers acquire better knowledge once they purchase a mortgage, allowing them to improve on initial choices, but empirical evidence on refinancing behaviour is not encouraging. Estimates from multiple countries, such as Ireland (Devine et al., 2015), the US (Campbell, 2006) the UK (Miles, 2004) and Denmark (Andersen et al., 2015) suggest that substantial numbers of mortgage holders fail to refinance optimally. In the Danish study, for example, an empirical model of household inattention to mortgage refinancing incentives was estimated using an administrative dataset containing over 80,000 refinancing observations between 2010 and 2011. Optimal refinancing was rare. Those who did refinance optimally tended to be younger and better educated. Low uptake of preapproved, free refinancing offers targeted at suitable

households further suggests a lack of understanding of the financial benefits of refinancing (Keys, Pope and Pope, 2016). While it can be difficult to infer suboptimal refinancing, given the transaction costs involved in switching (Klemperer, 1987), including expected or actual time, psychological and financial costs, this study recorded that homeowners were missing out on very substantial savings even when conservatively estimating high transaction costs.

### **Low Initial Repayments and Present Bias**

One salient feature of a mortgage is the initial monthly repayment. Evidence from multiple methods indicates that a substantial proportion of households may overweight the initial repayment when deciding on a mortgage. This may happen for reasons described in the previous subsection, because faced with such a complex product individuals do not know or understand that their interest rate is set to rise. Or it may happen because, even though individuals do know that the rate will rise, they are present-biased and so place much more weight on initial repayments than repayments in the future. If the lure attracts a sufficient proportion of consumers, providers may have an incentive to exploit these behaviours by marketing ‘teaser’ rates.

Initial evidence comes from difficulties in accounting for the choice between adjustable and fixed-rate mortgages (ARM versus FRM). One theory proposes that households estimate future adjustable rates based on the average rate in the past (Kojien et al., 2009). Another argues that the key factor is the gap between the fixed and adjustable rates (Campbell and Cocco, 2003). However, a study using data from nine countries found only partial empirical evidence for these theories and concluded that mechanical forecasting rules do not describe how households form expectations about interest rates (Badarinza et al., 2015). Similarly, Miles (2004) calibrated the model of Campbell and Cocco (2003) to UK conditions and found large discrepancies between model predictions and chosen mortgage types. The factor that reconciled these differences was the degree of weight given to the initial monthly cost of the mortgage. When the model was adjusted so that more weight was given to the initial cost, its predictions more closely resembled observed market patterns.

As outlined in Section 2, a product feature can be beneficial for one group of consumers and yet attract others for whom the product is unsuitable. A

mortgage with a low or zero introductory interest rate allows a home to be purchased at a much lower up-front cost, with the cost ‘back-loaded’ into the future. This can be useful for households engaging in initial outlay, such as for refurbishment, or for those who (correctly) anticipate rising income. Using UK household panel data, Cocco (2013) provides some evidence that consumers who expected income growth used mortgages with initial discounts as a tool for consumption smoothing; that is, as a way to keep their standard of living approximately constant. However, the paper also notes that the low initial monthly repayments may have attracted consumers who were more short-sighted and had no expected income growth. The finding that complex mortgages appeal to financially sophisticated consumers is also reported by Amronin et al. (2011).

Multi-method empirical evidence implies that mortgages offering lower initial monthly repayments at the outset attract consumers for reasons other than consumption smoothing, because of both lack of knowledge and present bias. In the study cited above, Bucks and Pence (2008) found adjustable-rate mortgage holders were either unaware that their interest rates could rise or underestimated the possible change. Those at greater risk of large payment increases were more likely to report not knowing contract terms. The analysis linked lack of knowledge to poor financial literacy and cognitive constraints.

Evidence also suggests that mortgage providers may not be overly keen to educate consumers about what happens when the introductory period ends. Gurun et al. (2016) conducted a large-scale empirical study on the relationship between spending on advertising by lenders and the mortgage prices offered by those same lenders. The databases used covered the majority of mortgage providers in the US and the vast majority of advertising literature. In a content analysis of 37,432 print and direct-mail mortgage campaigns, only seven (0.02 per cent) explicitly mentioned a reset rate – that is, the rate after the introductory rate expires. This constitutes strong evidence that reset rates are hidden features of mortgage products. The study also showed that lenders who advertise more charge higher mortgage prices and that this correlation is stronger in areas with greater proportions of lower-income and less-educated borrowers.

Further evidence that providers exploit the lure of low initial rates comes from Agarwal et al. (2017), who present and test a model of ‘shrouded’

attributes inspired by Gabaix and Laibson (2006, see Section 1). The shrouded attribute in question is the reset rate on an ARM. While sophisticated consumers may purchase the mortgage in full knowledge of the looming interest-rate change and thus refinance before the introductory rate expires, less sophisticated borrowers may not, incurring the full brunt of the higher charges as a result. If there are enough less sophisticated borrowers, competition between providers will lead to greater differences between initial and reset ARM rates. Using data on mortgages provided by a large insurer, Agarwal et al. (2017) exploit the different timescales for the introduction of banking deregulation across US states to show that increases in competition drove down initial interest rates and drove up reset rates.

Other evidence indicates a role for present bias as a driver of decisions distinct from lack of knowledge. In a survey of nearly 2,000 individuals in the UK, Gathergood and Weber (2017) recorded self-reported measures of impulsivity, patience and risk-aversion. Mortgage details, measures of credit constraints and income volatility were also obtained from the 632 mortgage holders in the sample. Consumers with greater measured present bias were significantly more likely to hold back-loaded (i.e. interest-only) mortgages with low initial repayments. Consistent with the US studies, the data also recorded a link between financial literacy and back-loaded mortgages, such that a decrease of one point on a five-point financial literacy scale increased the likelihood of holding an interest-only mortgage by 53 per cent – an effect size of considerable magnitude. Atlas et al. (2017) found similar results in a US survey designed to disentangle the separate roles of discount rates and present bias as determinants of initial mortgage choice and subsequent mortgage management. A measure of impatience was added to a survey of a large nationally representative sample of US households. A follow-up Internet survey was administered to 244 mortgaged US homeowners, of which 120 were in negative equity. Individuals with greater long-term discounting and present bias were more likely to choose back-loaded mortgages. Those with stronger present bias were also more likely to have borrowed a larger portion of the cost of their home and to be in negative equity. Interestingly, however, present-biased individuals were less likely to engage in strategic default, presumably because they placed greater weight on the immediate negative consequences of this course of action.

Lastly, in addition to the above survey evidence, Perry and Lee (2012) experimentally tested the role of decision fatigue in mortgage choice using a sample of US undergraduate business students. Decision fatigue was induced via an online shopping task in which one group was required to make 14 different choices about buying a house. Having completed this set of choices, they were asked to choose between five mortgage options. The control group completed only the mortgage-choice task. The mortgage options were designed so that the ARMs were higher-risk products but offered lower monthly payments. Decision-fatigued participants were significantly more likely to choose a high-risk ARM than the control group, who opted in greater numbers for the lower-risk FRM.

### **Mortgages Summary**

The evidence reviewed above implies that two features of mortgages can be negatively linked to consumer decision-making. First, the complexity of the product means that key properties can be misunderstood or ignored by consumers, including rate changes and penalties. Second, low introductory interest rates can prove attractive to consumers who fail to understand the reality of the reset rate or who discount it because they are present-biased. The evidence is mostly survey-based, but also involves analysis of administrative data and some qualitative and experimental methods, with largely consistent findings. One striking element in Lacko and Pappalardo's (2007) qualitative study is the detailing of interviewees' moods, which visibly deteriorated as they realised more about the true nature of their contract terms. An avenue that perhaps requires further exploration is the possibility that consumers may be sufficiently fatigued by the process of house purchase that it has a negative effect on their ability to engage with the mortgage process in a deliberative manner.

The evidence on time preferences and mortgage choice poses some challenges, because low introductory interest rates can be beneficial in theory if offered to consumers for whom they are suitable. In practice, however, they may be harmful. It is hard to see how marketing that makes salient an introductory interest rate while doing its best to shroud the reset rate can be anything other than harmful. One possibility would be more stringent suitability tests for any products with escalating rates, with the target market tightly defined based on expectations of future income.

## 4. RETAIL INVESTMENT PRODUCTS

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Retail investment mostly takes place through packaged investment products that give consumers easy access to financial markets. Underlying portfolios are generally decided for the investor and marketed in a branded and packaged form. There are many types of retail investment product and new types of offerings constantly emerge on the market. For simplicity, here we make the distinction between unstructured and structured investment products, where the latter depart from the model of simply paying returns on the underlying securities and instead pay returns according to a pre-determined formula, often with some form of capital guarantee.

### 4.1 NON-STRUCTURED INVESTMENT (MUTUAL) FUNDS

#### Five Key Points

- Retail investment consumers do not pay enough attention to fees. This might be because they are not salient enough or are expressed in a unit (such as percentages) that consumers find harder to process.
- Natural experiments based on regulation change in India indicate that the level of fees firms charge decreases as fee transparency requirements increase.
- Simplifying disclosures to make fees more salient had little effect on investment choices but experimental evidence shows that salient warnings and clear fund comparisons enable consumers to choose low-fee funds.
- Consumers overweight past performance information, especially when it is presented graphically.
- Experienced investors consider past performance too, but not to the same extent as novice investors.

#### Introduction

Given the enormous variety and complexity of options for investors, even the most sophisticated consumers must rely on simplifying heuristics of some sort in order to choose an investment product. The main product features of non-structured investment funds are the portfolio make-up and the fees charged. Past performance of the fund is a common disclosure feature, too, that is often influential in decisions. Thus, one of the primary issues facing the retail investor is to balance their assessment of the fees charged by the provider against their evaluation of the quality of the underlying assets. These two elements of the choice are analysed

sequentially below, although in practice they often interact or are even in direct competition for a consumer's attention.

### **Background Research**

As with the products reviewed above, an initial snapshot of consumers' knowledge and behaviour provides useful background. The proportion of households owning investment products has increased over recent generations in the US (Barber, Odean and Zheng, 2005) and Europe (Chater et al., 2010). The latter study involved a large-scale survey of 6,000 consumers in eight EU countries and a set of experiments, conducted for the European Commission. The results showed that consumers engaged in very little product comparison, often simply trusting advice from a single financial institution, and that many held incorrect beliefs. Almost 40 per cent of consumers with investments wrongly believed that their initial investment was protected. The study reviewed evidence that fees in the market are dispersed and often hard to determine.

### **Underweighting of Fees**

The academic evidence on mutual fund fees is unequivocal: to maximise returns, consumers should pay considerable attention to fee structures when making a fund selection (Gruber, 1996). However, only a minority of consumers have a good awareness of the fees they pay. Alexander, Jones, and Nigro (1998) found that less than 20 per cent of investors knew the fees and 84 per cent believed that higher fees were charged for better funds, when in fact the opposite is more likely to be the case. Evidence from multiple methods suggests that fees are underweighted by retail investors.

One simple way to measure how fees are factored into decisions is via conjoint analysis studies, in which participants make multiple choices over different products. The weight given to different product attributes is then statistically modelled, without the need for rankings or ratings of funds (Huber, 1997). Using this method with a sample of mutual-fund investors who each made 20 choices between three mutual funds, Wilcox (2003) showed that consumers were simultaneously highly averse to once off up-front fees and relatively indifferent to increases in annual management charges. Of the 50 participants, 46 displayed an inability to trade off these two fees in a reasonable manner over self-reported expected holding periods.

Barber et al. (2005) analysed historical US mutual-fund data and found that the mean operating expense ratio (the proportion of investment in a mutual fund that goes to the managing company) rose from just over 0.05 per cent in 1962 to almost 1 per cent in 2000. Simultaneously, the proportion of assets invested in upfront fees dropped from 91 per cent to 35 per cent. Based on a sample of 78,000 brokerage accounts, higher upfront fees were paid more by first-time investors, with repeat investors avoiding upfront fees but taking on higher back-loaded fees. The clear suggestion is that upfront fees were salient for consumers and that much larger fees sliced off funds at the end of investment periods were less so.

In Chater et al.'s (2010) experimental study, participants faced a relatively simple online investment experiment involving the allocation of €10,000 between two investments. Returns were determined by simulation, and optimal choice was defined as putting all the money into the investment with the higher expected return, based on the assumption that participants ought to be risk-neutral over the small amounts of money that they could win. Results indicated that, when the optimal investment had fees described in percentage terms and the alternative had fees described in euros, optimal choice was less likely than when the opposite was the case. The authors suggest this may be due to ambiguity aversion; a failure to understand percentage fees. The experimental study went on to test strong simplification and standardisation treatments. These treatments significantly increased the percentage of funds allocated optimally in some tasks but not for others; as decision aids they were only of partial help.

Anagol and Kim (2012) provide strong evidence for underweighting of fees from a natural experiment on financial regime change in India. A rule change in 2006 allowed fees to be taken off the value of closed-end funds over their tenure (technically called 'amortization'). This reduced the transparency of fees substantially, as it was difficult for consumers to distinguish between changes in net asset value and changes due to fee deductions. The rule change led to a proliferation of new closed-end funds charging high fees. When amortization was banned in 2008, these funds almost disappeared from the market. During the 22-month period for which they were allowed, the paper estimates that consumers paid an additional 3 per cent in fees.

Some studies have tested interventions designed to improve consumers' responses to information about fees. Beshears et al. (2011) undertook a



portfolio allocation experiment with 186 Harvard non-faculty staff to test whether simplified descriptions improved decision-making. Participants made investment choices for two hypothetical \$100,000 portfolios. Fees and average returns on fund options were varied so that some funds dominated others. A control group received standard prospectuses while other groups received simplified summary prospectuses, designed by the US Securities and Exchange Commission (SEC) to present vital information more clearly and concisely. However, average portfolio fees and past returns were largely unaffected. Similar results are reported by Choi et al. (2010) in an experimental study that investigated the degree to which disclosure manipulations could improve consumer decision-making in indexed mutual-fund choice (technically a very simple structured investment product). Providing a simplified sheet that summarised fees or a simple description of what an indexed fund does (passively track the market) did not help consumers to choose funds with the best returns.

A large-scale online experiment undertaken by the UK Financial Conduct Authority (FCA) with 1,049 participants investigated the impact of several interventions on how individuals factored fees into the decision over choice of fund (Hayes, Lee and Thakrar, 2018). In this study, participants selected a fund from a table of six options. This was repeated three times with different tables of options. The table gave the following information for each option: fund name (all were fictitious), the ongoing charge, the total costs and charges, past performance and risk level. A 'More Info' button could be clicked to give more information about that option. Unbeknownst to the participants, each group of six was made up of three pairs of funds. Within each pair one option had lower fees and the other had high fees (the size of the fee gap was varied). All other features, such as risk level and past performance, were held constant within pairs but varied between pairs.

Four interventions were applied:

- 1) **Warning:** A large-font visual warning reminding participants to check how much they were paying and that charges can have a significant impact on their returns
- 2) **Impact Chart:** A graph showing how a small difference in charges made a relatively large difference to net returns over a 20-year period
- 3) **Comparator Chart:** A scale showing whether a fund's charges were lower, higher or about average compared to other similar funds
- 4) **Review Screen:** A summary of the costs and charges for the selected fund, in addition to the comparator chart

There were five groups in total. One group saw none of the interventions (the control), one group saw only the warning, and groups three, four and five saw the warning along with the impact chart, comparator chart and review screen respectively. The key measure of the effectiveness of these interventions was how often participants chose a low-fee option in groups 2-5 relative to the control group. The largest effect was for group 5, who saw the warning and the review screen. In this group, 81.5 per cent of choices were for a low-fee fund relative to 72.8 per cent for the control condition. This difference is highly significant. The other interventions also caused a significant increase in the proportion of low-fee funds chosen. However, only the warning and review-screen intervention led to increases in understanding, as measured by a series of questions about the chosen fund's characteristics after the choice task ended.

Attention is a finite resource, and if the interventions directed attention towards fees at the expense of other attributes, it would not be surprising if choices were less sensitive to changes in those attributes. However, the results showed this was not the case; sensitivity to performance level of the funds was the same as in the control condition. Moreover, the warning interventions did not reduce the likelihood of participants saying they would be willing to invest in the chosen funds in real life.

### **Overweighting Past Performance**

Academic research strongly suggests that the past performance of funds offers little if any predictive value for future performance (Brown and Goetzman, 1995; Carhart, 1997; Fama, 1970; Rhodes, 2000; Barber et al., 2005). However, a number of well-established behavioural phenomena, on their own or in combination, might lead investors to overweight past performance, including extrapolation bias, representativeness and availability heuristics (Mitchell and Utkus, 2004), and anchoring on salient high or low points (Mussweiler and Schneller, 2003; Nelson, 2005). Empirical results from multiple methods converge on the central finding that consumers' investment choices are indeed heavily influenced by past performance.

In the context of retirement funds, Thaler and Benartzi (1999) conducted a laboratory experiment in which the time horizon of past performance was varied between one and 30 years. Participants who saw different periods made different investments. The authors put this effect down to the greater

volatility of performance over shorter periods. In the conjoint study of Wilcox (2003), of the six product features described – performance over the past year, average performance over the past 10 years, loading fee, annual management fee, beta measure (a proxy for volatility) and company name – greatest decision weight was placed on the two past performance metrics. Wilcox argues that his findings reveal “substantial cognitive errors” (p.658) and may arise because past performance is easier to understand than fee information. Similar findings arise in the experiment of Pontari et al. (2009). Participants (33 university staff and graduate students) ranked 18 mutual-fund advertisements that varied in past performance, cost and brand name. Once optimal combinations of high performance and low cost had been selected, participants systematically selected high past performance over low cost.

There is also evidence for the influence of past performance from field and survey experiments. Diacon and Hasseldine (2007) altered both the time horizon and format of past-performance information in a repeated measures mail field experiment. Perceptions of risk and return were altered by whether performance was depicted as an index of fund values or as quarter-on-quarter percentage yields, but this study did not report an effect of time horizon. In Kozup et al.’s (2008) Internet survey, past-performance information influenced judgments of perceived fund risk and expected returns only if presented graphically and only for those participants with lower financial knowledge.

Experimental evidence in other domains provides further support for the view that past-performance information draws consumers’ attention. Husser and Wirth (2014) used an eye-tracking study to show that attention paid to past performance strongly influenced expected returns and purchasing intentions. A regulatory disclaimer warning against such extrapolation – “past performance does not guarantee future results” – was found to be ineffective in attenuating the bias.

There is mixed evidence as to whether experience lessens the tendency for choices to be influenced by past performance. In the study of Barber et al. (2005), experienced investors did give less weight than novice investors to past performance. However, less encouraging are the findings of Koehler and Mercer (2009), who analysed 341 funds from 27 mutual-fund companies advertised in business magazines over a four-year period.

Companies selectively advertised their best-performing funds, but in an experimental test of responses to the adverts both retail investors and financial experts failed to appreciate this bias and treated them as representative of the provider's overall performance.

### **Non-structured Investment Funds Summary**

There is strong evidence, based on triangulation from multiple research methods, that two specific features of investment products are linked to disadvantageous consumer decisions. First, retail investors underweight fees, especially when back-loaded as a percentage taken from funds. Second, consumers overweight past performance.

Also notable is that attempts to overcome these problems by experimentally testing simplified investor-information or consumer-advice interventions have met limited (Choi et al., 2009; Chater et al., 2010) or negligible (Beshears et al., 2010) success. There is some evidence that, where possible, recasting percentage fees as monetary amounts may increase the weight accorded to fees in decisions. Certainly, the evidence supports the argument that fees should be made not only more transparent but also more salient. If it is not feasible to prohibit past-performance information on the grounds that consumers demand it, there is an argument that it should at least be standardised to prevent manipulation of the time-frame to exaggerate performance.

## **4.2 STRUCTURED INVESTMENT PRODUCTS**

### **Five Key Points**

- Structured products require consumers to assess the likelihood of different levels of return of the underlying assets, which are then linked to different outcomes for the consumer according to the shape of the payoff function.
- A common and seemingly attractive feature of structured products is the capital guarantee, i.e. protection against any nominal losses.
- Empirical evidence suggests that returns from structured products are often poorer than the expected returns from the underlying assets. Structured products are overvalued in experimental settings and their level of risk is underestimated.
- More complex structured products offer poorer returns to consumers. The appeal of these products may be caused by consumers focusing disproportionately on the salient low-probability best-case returns scenario, often denoted as the 'headline rate'.

- Averaging attributes is a common strategy used in product evaluation, but is unsuitable for ‘barrier reverse convertible bonds’ where capital loss occurs if *any* product in the bundle falls below a threshold. Experimental studies show that, despite it being an unsuitable strategy, investors apply an attribute-averaging evaluation technique to these products and systematically underestimate the likelihood of capital loss as a result.

### Introduction

Structured products are financial investments whose payoffs are defined as a more complex function of the returns on the underlying asset portfolio. They essentially offer retail investors easy access to derivatives. They are designed in theory to facilitate customised risk-return objectives, and therefore to benefit consumers whose needs cannot be met by traditional investment products. For instance, the returns of a structured product called ‘Fixeo’, issued by Credit Agricole, depended on the performance of the DJ EuroStoxx50 index (an index of Eurozone stocks) in the following way:

*After 1.5 years of investment, if the level of the index is at or above its initial level, then the product terminates on that date and offers a capital return of 112% at that time. At maturity, the product offers a capital return of 124%, as long as the final index level is at or above its initial level. Otherwise, the product offers a capital return of 100%, as long as the final index level is at or above 60% of its initial level. In all other cases, the product offers a capital return of 100%, decreased by the fall in the index over the investment period. (Célérier and Vallée, 2017, p.2)*

Below we review evidence from multiple methods indicating that many consumers in the structured products market might be better off elsewhere. First, decisions are negatively affected by the probabilistic nature of outcomes defined over losses and gains, with disproportionate weight given to guaranteed (nominal) capital returns. Second, the complexity of structured products, as demonstrated by ‘Fixeo’ above, can lead to consumer detriment.

### Probabilistic Losses and Gains

Although a great variety of structured retail investment products are now available in the market, one common feature is that they require consumers to assess the likelihood of different levels of return of the underlying assets,

which are then differentially linked to different outcomes for the consumer. Often, the function relating underlying returns to consumer outcomes differentiates between losses and gains. Since Kahneman and Tversky (1979), it had been understood that individuals misweight probabilities and respond differently to equivalent losses and gains. These preferences are embodied in Prospect Theory, a descriptive theory of how people make choices over uncertain outcomes. Two features of Prospect Theory particularly relevant to structured products are loss aversion and the certainty effect. Loss aversion means that people weight losses more heavily than equivalent gains. The certainty effect refers to the disproportionate preference for certainty relative to changes in probabilistic outcomes. In other words, a person would pay more to increase the probability of a positive outcome from 90 per cent to 100 per cent than they would to increase it from 80 per cent to 90 per cent.

Loss aversion and probability misweighting are central to theoretical explanations for why structured products seem attractive to consumers (Das and Statman, 2013; Hens and Rieger, 2014; Vanderbrouke, 2015). The upshot of these analyses is that consumers will be drawn towards structured investment products that exploit these tendencies and yet result in lower investment returns.

The exploitation of asymmetric responses to losses and gains is not that new. In a precursor to later work on structured products, Shefrin and Statman (1993) illustrated how firms leveraged biases to enhance the appeal of financial products, using the example of a covered call. The paper quotes from a stockbroker's manual that emphasises how, when marketing covered calls<sup>2</sup> to consumers, providers framed separate mental accounts for the gains from the call premium, dividend and capital gain, while casting what the consumer gave up in the exchange as vaguely as possible. This basic loss-gain asymmetry underpins one of the most common and seemingly attractive features of structured products, namely the protection against any (nominal) losses that comes with a capital guarantee.

Field study evidence shows that, when participants were asked to design

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<sup>2</sup> A covered call is an options strategy where an investor holds a long position on an asset such as a stock (i.e. expects its value to go up) and at the same time sells a call option (a right to buy the asset at a predetermined price, called the strike price) on that same asset. This strategy allows investors to earn income via the premium received for writing the option. However, the investor forfeits stock gains if the price moves above the strike price.

their ideal structured product, capital-protected structured products were the most popular (Hens and Rieger, 2012). Several studies have also concluded that it is not possible to account for the popularity of certain structured products without assuming misweighting of probabilities or loss aversion. Breuer and Perst (2007) show how the prevalence of reverse convertible bonds is consistent with consumers possessing Prospect Theory-type preferences and low subjective competence. The analysis of Das and Statman (2013) suggests that the popularity of some structured products implies that a proportion of consumers evaluate losses and gains in separate mental accounts.

Of course, it can be argued that for some consumers these preferences might make sense. Two key questions, therefore, are: first, whether structured products are sold only to suitable consumers and, second, whether consumers understand that, in return for offering a capital guarantee or another probabilistic benefit, the provider is likely to pocket a greater proportion of underlying asset returns in many circumstances. If evidence suggests that a type of structured product is systematically associated with substantial underperformance, then it would support the view that consumers' preferences over probabilistic outcomes are being exploited.

In this context, Chang, Tang and Zhang (2014) report that Hong Kong investors purchased 8 per cent more structured products when suitability checks were not carried out, with this effect being attenuated by higher financial literacy. Qualitative interviews revealed that some consumers misunderstood whether the notion of capital loss applied to the portfolio as a whole or its individual components. More generally, the empirical data suggest that consumers often fare badly by investing in structured products. In a detailed analysis of the pricing and expected returns of one popular structured equity product, Henderson and Pearson (2011) found that consumers locked in negative returns of at least 8 per cent per year – a figure arrived at by calculating the cost of instead holding the stocks and bonds underlying the structured products with the same risk. Using a larger sample of structured products, Bergstresser (2008) estimated a similar magnitude of overpricing. Entrop et al. (2016) analysed German retail investors' performance using account-level data for 10,653 retail customers of a large German direct bank. The performance of structured products for retail investors was very poor. Relatively simple discount certificates

underperformed the market by 0.25 per cent per month; more complex 'bonus certificates' underperformed by a very large 0.85 per cent per month. These measures of underperformance constitute large effect sizes.

The FCA conducted an online survey experiment to investigate potential overvaluation of structured products with a sample of 384 retail investors who indicated they had bought or would consider buying structured products (Hunt, Stewart and Zaliauskas, 2015). Participants evaluated structured deposits with payoff functions that were linked to the performance of the FTSE100 and had a standard duration of five years. For instance, one structured deposit, called 'capped', offered a return equivalent to the growth in the FTSE100 up to a 30 per cent cap. The survey elicited expectations about both structured product and FTSE100 returns. The study hypothesised that, if consumers' estimates of structured product returns were well calibrated, or if errors were random, projected returns would be a function of FTSE100 returns. If evaluations were systematically biased, however, the two estimated returns would not be aligned. Participants answered incentivised multiple-choice questions to gauge understanding of three structured products, and reported beliefs on likely returns over one, two and five-year horizons. Participants also compared the structured products to risk-free cash deposits. The results showed that, relative to their beliefs about FTSE100 returns, consumers overvalued structured products. Those with lower education attainment made greater overvaluations. With an average overvaluation of 1.87 per cent per annum overall, the effect size, again, was large. Moreover, the evidence on indifference points between risk-free cash deposits and structured products implied that the structured products were considered almost risk-free.

### **Complexity**

With the possible exception of simple indexed funds, structured products are by their nature more complex forms of investment than unstructured products, since in essence they require returns on the underlying investment to be in some way translated into payoffs for the investor. Complexity is not straightforward to define or to manipulate experimentally, yet some studies suggest that it plays a role in consumers' difficulties in evaluating structured products.

Most straightforwardly, as described above, some empirical data record outcomes worsening as complexity increases (Entrop, 2016). In the



aforementioned FCA experiment, complexity was manipulated in the design by altering the number of components in the payoff function. The study recorded the highest overestimation for one of the more complex products, but did not report statistical tests between levels of complexity. Nevertheless, the authors conjecture that anchoring to the ‘headline rate’ might play a part. In other words, consumers may place disproportionate attention and decision weight on the best possible return the structured product offers, even if the probability of realising this return is very low. This possibility is consistent with the findings of Célérier and Vallée (2017), who obtained textual descriptions of the payoff formulas for 55,000 products issued in 16 European countries from 2002 to 2010, with a total estimated issuance value of €1.45 trillion. Using this rich dataset, textual analysis was used to explore correlations within the attributes of offered products, including the ‘headline’ rate, the complexity measured by the number of components in the payoff formula, and the level of risk measured by exposure to complete loss of principal. Results showed a positive correlation between headline rates and complexity, and that products with higher headline rates and greater levels of complexity and risk were more profitable to providers. Moreover, savings banks, which mainly target lower-income households, offered more complex products than commercial banks.

One possible strategy that consumers might follow when faced with a complex structured product is to average the perceived risks of the multiple components, in line with evidence of attribute averaging in multiple domains (e.g. Weaver, Garcia and Schwarcz, 2012). This strategy would lead them in particular to overvalue structured products where performance was in some way contingent on the worst performing asset. Kunz, Messner and Wallmeier (2017) demonstrated that valuations of a specific structured product, ‘barrier reverse convertible bonds’, can be manipulated by exploiting this cognitive mechanism. Any capital loss for these products is dependent on the level of the worst-performing stock of a set, so by definition adding extra stocks to the set increases the downside risk. In an experimental study conducted with 244 active capital market investors in Switzerland, perceived risk of loss decreased substantially when safe stocks were added to riskier ones, suggesting that participants averaged the risks instead of totalling them. Half the participants in this experiment rated their expertise in evaluating structured financial products as strong or very strong.

**Structured Investment Products Summary**

It is not straightforward to demonstrate that the demand for structured products is increased by mistaken valuations, since there are plausible consumer preferences that can explain the choice of a structured product with a poor expected return. Nonetheless, the evidence reviewed here suggests that the popularity of some structured products is driven by how they interact with the way that consumers process probabilities and gains versus losses. This conclusion is consistent with evidence showing that some structured products underperform other investments, sometimes by substantial amounts, and are systematically overvalued in experimental studies. There is some evidence that complexity results in consumers focusing disproportionately on low-probability headline returns and that they inappropriately average risks when they should total them. In general, provider mark-ups appear to increase with the complexity of the product.

## 5. INSURANCE

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Insurance allows risk-averse individuals to protect against financial loss. Almost any risk that can be quantified can be insured. Consequently, insurance is the broadest product covered in this review. Furthermore, the volume of work on risk perception, and how it is altered by context is very large. Jespersen (2016) provides a comprehensive review of drivers of insurance demand, while Schwarzc (2010) reviews evidence for mistakes in insurance decisions and discusses the difficulty of identifying consumer mistakes when, in part, they are paying for subjective ‘peace of mind’.

To manage the breadth and volume of material, here we focus on two features of insurance where empirical studies highlight clear issues for the quality of consumer decision-making. We first review evidence for detrimental effects where insurance is offered as an add-on at the point of sale (POS), potentially inhibiting the use of deliberative reasoning. This is an area that has already received much regulatory attention: such insurance products have been the subject of regulatory penalties and consumer repayment schemes in the UK and Ireland. We then assess the degree to which the complex price structure of insurance, specifically the excess-premium trade-off, plays a role in poor decisions for types of insurance such as health and motor insurance.

### 5.1 ADD-ON INSURANCE

#### Five Key Points

- Emotional factors loom large in decisions to purchase add-on insurance. These factors are more prevalent than cognitive factors when the product is offered at POS.
- Qualitative evidence on add-on insurance offered at POS suggests decision fatigue, pressure exerted by sellers and anchoring on the cost of the primary product (phone, car, etc) influence decision-making.
- Empirical evidence suggests that overestimating the probability of product failure is another driver of demand for add-on insurance for consumer products.
- Experimental evidence suggests that barriers to viewing alternative add-on insurance products and time pressure both decrease the likelihood of choosing the cheapest option.
- The claims ratio for add-on insurance is substantially lower than for other forms of insurance.

## Introduction

Several psychological factors have been linked to the decision specifically to purchase add-on insurance. First, experimental studies have found that emotional factors are key elements of the decision to insure. Huysentruyt and Read (2010) recorded that, while individuals overestimated car breakdown probability and associated repair costs, emotional benefits were the best predictor of willingness to pay for insurance. Similarly, in a questionnaire experiment, Ranyard and McHugh (2012a, 2012b) provided evidence that peace of mind drove purchase decisions for payment protection insurance (PPI) and that demand for PPI was consequently insensitive to the level of cover provided. Second, Rabin and Thaler (2001) argue that ‘myopic loss aversion’, a combination of loss aversion (Kahneman and Tversky, 1979) and mental accounting (Thaler, 1985), drives people to be risk-averse over small scales and thus to buy add-on insurance. Support comes from Jindal (2014), who found evidence of loss aversion being a primary factor behind decisions to pay high premiums for extended warranties when choosing between washing machines with repair costs and failure rates stated explicitly. Third, straightforward misperception about the probability of product failure may drive extended warranty demand. Using panel data from a large US consumer electronics retailer on extended warranty purchases between 1998 and 2004, Abito and Salant (2015) estimated that more than 80 per cent of the retailer’s profit on warranties was due to overweighting of insured products’ failure rates.

## Point-of-Sale (POS) Selling

Each of these three psychological factors may be exacerbated when decisions are pushed onto consumers at the POS. Here we review evidence from multiple methods that supports the view that POS selling is an important situational factor that inhibits informed decision-making.

The mark-up on payment protection insurance (PPI) is higher when it is sold alongside a primary product than when sold alone (Ashton and Hudson, 2017). Following a ‘mis-selling’ scandal, the joint provision of unsecured lending and PPI was banned in the UK in 2009. In the context of this regulation, Ashton and Hudson (2014) analysed the lending offered by multiple banks over the period 1998–2011. The results showed a link between offering PPI and lower unsecured lending rates, implying a cross-subsidy of sophisticated consumers by naïve ones who agreed to purchase PPI. Abito and Salant (2015) showed that the shopping environment

affected warranty purchases: the likelihood of buying a warranty was approximately 17 per cent higher in-store than online, controlling for household and brand fixed effects and some other relevant factors. This may imply that consumers are more prone to persuasion when shopping in person, possibly due to the influence of the salesperson who is able to raise a discussion about the possibility that something will go wrong.

The FCA conducted an online experiment to investigate features of the add-on insurance sales environment that reduce consumer surplus, including the POS feature (Ischenko et al., 2014). It consisted of an incentivised shopping task for primary product and associated optional insurance. Participants were a nationally representative sample of 1,504 UK residents. Five treatment groups were used to isolate the effects of choice complexity, reduced transparency and the option to search for alternatives. The results suggested that small changes in how the product is sold could have significant impacts on consumer behaviour. In the condition where add-on insurance was revealed at POS, 65 per cent of insurance buyers purchased the first insurance offer they viewed without searching further. By contrast, only 17 per cent of participants did this when the insurance offers were presented alongside the primary product. Participants paid 15 per cent more for their add-on insurance when it was revealed at POS compared to the more transparent situation where it was presented up-front. Even modest search barriers (two mouse clicks in the experimental setting) led to reduced shopping around and paying higher prices for add-on insurance.

A large scale, multi-method EU-commissioned study (London Economics, Ipsos and VVA Europe, 2017) conducted in six countries with 5,404 participants included an examination of the potential detriment associated with POS add-on insurance offers. Focus groups reported feeling under pressure to make a decision, due to time or the techniques of sellers. An experimental test mimicked the time pressure that consumers experience. In the context of a car-rental or buying add-on insurance for a bed, participants were shown a brief description of the product and then an initial stage insurance offer. They had the choice to accept the offer, view alternatives or proceed without insurance. Participants in the group under time pressure were significantly more likely to accept the offer shown. The authors note that, in the group without time pressure, the proportion of medium and high-education participants who chose optimally was significantly higher than the proportion of low-education participants who

did so, but that no difference was recorded when time pressure was involved. The implication is that time pressure curtailed the ability to apply deliberative thinking. At the confirmation stage however, where time pressure was not applied, the group previously under time pressure were more likely to change their mind and proceed without insurance. The report stresses that the initial stage decisions may be most indicative of real-world behaviour, but notes that evidence of consumers rectifying mistakes suggests potential benefits to cooling-off periods.

Qualitative research carried out by regulators supports the view that POS selling negatively affects consumers' decisions. In a (US) Consumer Financial Protection Bureau (2016) report based on a sample of 308 recent car buyers, the majority of consumers reported buying add-on insurance during the process of arranging financing, with approximately half stating that the purchase was for peace of mind. Yet half also indicated they had not considered add-on insurance until they were at the dealer. Many also reported that they experienced decision fatigue. The Australian Securities and Investment Commission (ASIC, 2016) noted four detrimental effects of POS add-on insurance offers in the car market. First, consumers are more likely to be affected by decision fatigue (Pocheptsova, 2009). Second, the cost of insurance may be perceived relative to the price of the vehicle, making it seem cheaper than if considered in isolation. Third, having just agreed to purchase the car, the consumer's emotional investment in the car is likely to be greater. Last, sales practices can leverage consumers' sense of reciprocity, such as by pre-filling application forms on the consumer's behalf. Similar themes are noticeable. Such evidence contained in qualitative reports must be weighed against sample size and researcher subjectivity, but a comprehensive empirical ASIC (2016) report of the level of sales, premiums, commissions and claims for add-on insurance products sold through car dealers provided corroborating quantitative evidence for the suggestion that car buyers' decisions are negatively affected by how add-on insurance is sold. The claims ratio for add-on insurance was 9 per cent, substantially lower than the historic ratio for car and house insurance. Multiple causes for this low claims ratio were put forward, one being the environment in which the add-on insurance was sold. It is notable that a key factor in the UK regulatory decision (to ban PPI being sold alongside the primary credit product) was the extremely low claims ratio.

### Add-On Insurance Summary

Emotional and situational factors loom large in add-on insurance decisions. The evidence reviewed here suggests that these reduced the quality of consumer decision-making when a product was presented at POS. There is, therefore, an argument for policy designed to make the environment more conducive to informed decision-making. Given the situational factors, additional information may be less effective than rules, although information on historic failure rates might help to 'debias' consumers' beliefs. The validity of trying to attenuate loss aversion in relation to extended warranties is more complex, since it depends on whether one views loss aversion as an emotional reaction, a mistake or a legitimate preference (Camerer, 2005). Reviewing much of the same literature contained herein, Baker and Siegelman (2013) propose a ban on the sale of extended warranties at the POS or, failing this, price regulation.

## 5.2 EXCESS-PREMIUM TRADE-OFF

### Five Key Points

- There is substantial empirical and experimental evidence that consumers prefer lower levels of excess than standard economic theory would predict.
- Underestimating premium savings from a higher excess and overestimating the probability of a claim were some of the earlier theories forwarded to explain these preferences.
- Recent empirical and experimental evidence indicates that the fundamental trade-off between premium and excess is poorly understood by many consumers.
- Consumers often choose dominated options from menus of health insurance plans, offering clear evidence of a detrimental deficit in consumers' understanding of the excess-premium trade-off.
- Experimental evidence suggests simplification and clearly worked examples can improve consumer understanding of the excess-premium trade-off.

### Introduction

The excess ('deductible' in the US) is the fixed amount that the insured party must pay before liability for the cost transfers to the insurer. The primary purpose of the excess is to minimise the risk of moral hazard on the part of the insured. From the insurer's point of view, the ideal scenario is that the insured acts with the care and circumspection of an uninsured person. Theoretically, the behaviour of the insured approaches this ideal as the

excess increases in size. For this reason, a higher excess means a lower premium because the risk of a claim is lower, and so too is the total amount covered by the insurance. From a pure economic efficiency point of view, the optimal excess is often the highest that can be afforded.

### **Overweighting Excess**

There is substantial empirical and experimental evidence that consumers prefer lower excesses than this standard economic theory would predict (Pashigan, 1966; Sydnor, 2010; Barseghyan et al., 2013). Numerous behavioural theories have been forwarded to explain this preference. For example, it may be due to insurance being viewed as an investment (Slovic, 1977), the fear of feeling regret in case of a claim (Braun and Muermann, 2004), or overestimating the probability of a claim. Experimental evidence suggests that individuals may also underestimate the possible premium savings of choosing a higher excess, because they insufficiently adjust the weight they give to the excess in their decision given the low probability of a claim (Shapira and Venezia, 2008). In other words, they do not account for the fact there is a low probability that out-of-pocket costs will be higher than the excess. If consumers frame the excess as a segregated loss, when faced with this loss they feel both the cost of the accumulated premiums and the out-of-pocket cost of the excess. Johnson et al. (1993) hypothesised that, if myopic loss aversion was a valid explanation for low excess preference, an equivalent rebate policy where the excess was paid to the insurance company as part of the premium and returned at year end in the event of no claim would appear more attractive than a standard excess policy. A between-subjects experimental test with 187 respondents showed that individuals were significantly more likely to rate the rebate policy as 'attractive' than the equivalent excess policy.

The aforementioned hypotheses assume that consumers understand and perform the trade-off between premium and excess, at least to a first approximation, although they may not do so in line with standard economic theory. However, a growing body of evidence suggests that the preference for low excesses may reflect lack of understanding of the fundamental structure of insurance. Schoemaker and Kunreuther (1979) carried out a hypothetical scenario experiment in which participants were told they had a 1 per cent chance of losing between \$10,000 and \$30,000. Four insurance plans, which differed in premium and excess, were offered to protect against this loss. Consumers ranked the attractiveness of each plan. Just



one-third of participants gave the ordering predicted by expected utility theory for risk-taking, risk-neutral or moderately risk-averse decision-makers, leading the authors to note that the findings 'raise questions about people's abilities to focus on two dimensions (premiums and deductibles) and appropriately weight trade-offs'.

It is not clear, however, that based on such findings one can assert that consumers fundamentally misunderstand the premium-excess trade-off, because often there may be a set of perfectly reasonable but non-standard preferences that can rationalise a particular insurance choice as being the best for that individual. However, if consumers choose dominated options, we can more confidently deduce that a mistake is being made.

### **Comprehension and Simplification**

Bhargava, Loewenstein and Sydnor (2017) present comprehensive empirical and corroborating experimental evidence that individuals choose dominated options in health insurance, implying a misunderstanding of the premium-excess trade-off. Given the strength of their findings, we give a more detailed description of the work. The study obtained access to data gathered at a large US firm, where employees constructed their own health plans from a build-your-own menu featuring 48 plans that varied in cost-sharing and premium but were otherwise equivalent. Approximately 60 per cent chose a plan that was financially dominated. The average employee who opted into a dominated plan could have saved \$372 per year by choosing an otherwise equivalent plan with a higher excess and lower premium. This is a large effect size, equivalent to 24 per cent of the premium. Two experiments explored reasons for the choices. The main hypotheses were: (a) menu complexity caused the choice of dominated options, (b) non-standard preferences and (c) 'insurance incompetence', meaning a basic lack of understanding of the cost-sharing features of insurance. The first online experiment with 2,379 participants suggested that menu complexity was of minor importance in the choice of dominated options, since even when only four plans differing only in excess and premium were displayed, two-thirds of participants still chose a dominated option. The second experiment with 605 participants investigated the effect of three interventions designed to explain the premium-excess relationship. Subjects were shown projected total health costs under scenarios of good health and bad health, a plain-language definition of excess, and a mapping of plan prices and excesses to total health costs. The intervention reduced

the proportion choosing dominated plans from 48 per cent to only 18 per cent.

This study is important because it strongly suggests that the initial decision-making recorded in a real-world setting did not reflect true preferences but instead revealed poor-quality decision-making by employees of a large company, who were unable to trade off a premium against an excess properly. It provides support for other studies in the health insurance sphere that report a basic lack of understanding on the part of consumers about the excess (Atanasov and Baker, 2014; Johnson et al, 2013).

The EU-commissioned study (2017) on behavioural factors in insurance markets also probed participants' understanding of an 'excess'. On average, 80 per cent could identify what the term meant. A survey question presented a table of key characteristics of three insurance policies, each including an excess. Respondents had to identify which policy they expected to have the lowest premium and the highest premium. The question on the lowest premium was answered more accurately (61 per cent average) than the question about highest premium (44 per cent average), but the results again indicated a lack of understanding of the interaction between excess and premium. The same study presented a choice task for either home contents or motor insurance, in which participants chose an excess level of either €0, €100 or €500. The excess level was defined as 'correct' if chosen to be as high as possible, given the respondent's previously indicated personal financial situation, but 59 per cent chose an excess too low for their financial wealth. Although this evidence is arguably weaker than that of Bhargava et al. (2017) because a normative criterion was imposed not to pay more to insure against small losses, it provides further experimental evidence of mistaken choices of low excesses.

### **Excess-Premium Trade-Off Summary**

Multiple studies imply that consumers do not appreciate that there is a trade-off between the excess and premium on an insurance contract. Given this, it is difficult to see how such consumers can make an informed decision on insurance plans. The findings of Bhargava et al. (2017) are telling in this respect, though they suggest that educational and advice interventions can help to improve decisions.

The situation is further complicated by the fact that encouraging consumers

to take on higher excesses may be more appropriate for some types of insurance than others (Brot-Goldberg et al., 2017).

## 6. CONCLUSIONS

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### 6.1 SUMMARY OF FINDINGS

#### Credit Products

Experimental and empirical evidence demonstrates that a large proportion of consumers do not understand the repayment dynamics of credit cards and are not aware of how to minimise the cost of debt across multiple cards with differing interest rates. Similarly, consumer responses to elements of disclosure strongly suggest a lack of understanding and consequential reliance on cues for appropriate behaviour. Convergent evidence from multiple methods indicates that minimum repayments on bills act as anchors, lowering repayments and hence increasing levels of debt and associated costs. By the same process, credit limits affect the behaviour of individuals that are not credit-constrained as they are treated as a signal about future earnings. Consumers often fail to factor in less salient product features, such as fees, into their decisions. This may be because they are not aware of them, pay insufficient attention to them, or are too optimistic about avoiding them. The regulatory restrictions on fees in the CARD Act have been of substantial benefit to consumers.

Less research has been conducted on consumer decision-making in the domain of personal loans, but the extant literature points towards some similar predispositions to those documented in credit-card consumers. Consumers' insensitivity to interest rates suggests a tendency to underweight attributes that are less well understood in decisions; for consumers of loans, APR is often not analogous to price. The multi-attribute nature of a loan may exceed cognitive capacity. Two strands of evidence support this view. First, in a large field experiment, superficial aspects of loan advertisements altered demand by the equivalent of one-quarter of the interest rate. Second, experimental evidence suggests consumer preferences over loans are highly malleable. Manipulating which co-determined loan attributes are made explicit leads to widespread choice inconsistencies. For high-cost payday loans, presenting costs in cash terms increases the likelihood of choosing a lower-cost option. This accords with the view that interest rates are not well understood.

Evidence draws a clear link between two aspects of mortgage product design and disadvantageous consumer decision-making. First, evidence

from multiple methods suggests that overall complexity of mortgage products means that key properties can be misunderstood or ignored by consumers, including rate changes and penalties. Qualitative and empirical evidence reviewed consistently indicated that the possibility and potential scale of interest-rate changes were systematically underestimated by many (mostly less educated) consumers of complex mortgages.

Evidence from multiple methods implies that introductory offers on mortgages have the potential to cause consumer detriment. Experimental evidence also suggests that this salient mortgage feature may be more enticing when consumers are experiencing decision fatigue. The affordable initial monthly repayments attract present-biased consumers who do not necessarily consider the long-term repayment schedule after the reset rate. Advertising and empirical evidence indicates that these consumers are often specifically targeted by sellers of these mortgages. Present bias may also compound the consumer detriment if it reduces the likelihood of strategic default. However, consumer heterogeneity means that introductory interest rates should not be considered an undesirable product feature *per se*. Evidence suggests they can benefit sophisticated, income-constrained households who wish to engage in consumption smoothing.

### **Investment Products**

Triangulation from multiple research methods provides persuasive evidence that consumers underweight fees and overweight past performance in decisions on mutual fund investments. Experimental evidence indicates that past performance is often factored into decision-making at the direct expense of fees information. Fees are underweighted to an even greater extent when they are back-loaded. Some evidence points towards recasting percentage fees as monetary amounts as a way to increase the weight accorded to fees in decisions. Experimental attempts to refocus consumer attention away from past performance towards fees through simplified investor information or consumer advice interventions have had limited success.

The evidence that features of structured products negatively affect consumer decisions is less straightforward, but some general trends suggest that detriment is likely in many cases. Experimental and empirical evidence are in agreement that consumers overvalue structured products relative to the expected return of the underlying assets. Moreover, overvaluation

appears to be increasing in the complexity of the structured product, defined by the number of scenarios that influence the pay-off function. Focusing on one salient feature of a complex product, such as the low-probability headline rate, is one strategy that plausibly could bring about the relationship between complexity and overvaluation that has been observed empirically.

Moreover, qualitative evidence indicates that consumers misunderstand important features of structured products, such as the conditions under which a downside barrier is breached. Inappropriate attribute-averaging strategies indicate the possibility of fundamental misunderstandings that have the potential to cause considerable unexpected consumer detriment. The extent to which market forces should be allowed to cater to costly preferences on the part of consumers is arguable. Ensuring that consumers are aware of these costs seems a reasonable prerequisite. To this end, appropriately designed suitability tests may play an important role in the market for structured products.

However, given the inherent complexity of structured products and the scale of consumers' overestimation of their value, as demonstrated by some of the effect sizes reported above, there is an argument for stronger intervention. One possibility is to insist that structured products and their surrounding disclosures be empirically tested, to ensure that consumers are able to value them, or as a guide to establishing their suitability. We return to this possibility in the final section of the paper.

### **Insurance**

Qualitative, empirical and experimental evidence suggests that the practice of offering add-on insurance at POS has a detrimental impact on deliberation by consumers, a hallmark of informed decision-making. Multiple factors are posited to play a role in the negative impact of POS selling on decision-making, including: viewing prices relative to the cost of the primary product, decision fatigue, a sense of reciprocity to the salesperson, and an increased emotional investment in the primary product. Measures to limit the impact of these factors in decisions may be beneficial to consumers.

Evidence also suggests that consumer decision-making on insurance plans is afflicted by a misunderstanding of the excess-premium trade-off. The

complex fundamental structure is a barrier to informed decision-making.

## 6.2 POLICY IMPLICATIONS

Much of the material reviewed in this international literature review is recent and the volume of relevant evidence being generated continues to grow. Behavioural economists are taking advantage of improved data gathering and availability, and devising multiple methods of empirical study for testing behavioural hypotheses. Given this backdrop, it is a matter of judgment as to whether one considers the volume of evidence described here, linking these features of financial products to the quality of consumers' decision-making, to be high or low. Nevertheless, one of the striking aspects of this review, as the preceding summary makes clear, is that in each of the main product categories covered there are identifiable features of products that raise concerns from a consumer protection perspective.

If a generalisation is permitted across the body of evidence as a whole, it seems reasonable to conclude that as we learn more about how real consumers make decisions in retail financial services markets, the evidence does not support the traditional model of self-interested utility-maximising consumers. Mistakes are common and the quality of decision-making with respect to multiple product categories is questionable and in some cases quite poor. Across multiple studies, the findings also suggest that, although a substantial proportion of the population may be influenced by certain product features in a negative manner, effect sizes tend to be larger with respect to individuals with lower levels of education and financial understanding. However, in many cases interventions designed to communicate key pieces of information and to promote informed decision-making had no or only modest impacts. Put simply, the consumer's problem is rarely one of lack of information. Other solutions are required.

One theme to emerge across multiple markets is that there are products for which there may be too many important attributes for consumers to take them all into account simultaneously. For instance, the impact on decisions of changing which specific attributes of personal loans are made explicit, the gains from reducing the number of potential fees incurred on credit cards, the failure to understand or recognise mortgage reset rates, and the difficulty of combining multiple risks associated with a structured investment product, all suggest that consumers' cognitive capacity is taxed

by products with large numbers of important attributes. This leaves them potentially prey to product features that emphasise some attributes and shroud others. These findings, therefore, add weight to the argument that policymakers might assist consumers by mandating the provision of at least some products for which the attributes all meet a certain standard, whether branded as ‘plain vanilla’ or otherwise (Barr, Mullainathan and Shafir, 2008; AFM, 2015).

Two other commonalities of the findings reviewed imply that specific types of disclosures may be particularly helpful. First, consumers seem to factor monetary amounts into their decision-making more easily than percentages, such as where weight is given to monetary costs rather than the APR on credit products, and upfront fees are avoided at the expense of larger back-loaded fees taken as percentages from investment funds. At one level, the fact that consumers do not treat different descriptions of amounts as equivalent is troubling. However, knowing that cash amounts carry more weight in decisions is important for considering how to design effective disclosures and how to communicate good consumer advice. Second, the review uncovered multiple examples where consumers did not comprehend the fundamental basis of the transaction in which they were engaged. That is, while they may have been able to see the potential benefit of the product to them, they seemed not to grasp or pay sufficient attention to how the provider was making its profit, whether by underestimating accumulated costs of credit or fees, or more simply by failing to negotiate the trade-off between premium and excess. Arguably, it is a fundamental aspect of judging the merits of any transaction to know where the transaction surplus ends up.

The fact that multiple experimental methods are now being exploited to investigate the quality of financial decision-making has its own potential implication. As research methods become more standardised and the skills to conduct decision-making research more widespread, it is reasonable to ask why these methods are applied to investigate potential problems associated with financial products that are already on the market. Increasingly, there must be an argument for employing these research methods *before* financial products come to the market. It is now relatively straightforward to test consumers’ comprehension and decision-making with respect to different products and disclosures. Given the evidence reviewed here, the pre-testing of some products and product features



would be likely to highlight important issues for consumer welfare, such that we could be more confident that innovative financial products offer genuine value to the consumer.

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